

2023 Census data user guide





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Purpose

2023 Census data user guide provides information about collecting, processing, interpreting, and the ways of using 2023 Census data.

Census processes and procedures

Below are answers to questions people commonly ask Stats NZ about how census data is collected and processed. See also [Introduction to the New Zealand Census](#) for more information.

Who is counted?

The census aims to count everyone in Aotearoa New Zealand on census night. This includes:

- people on New Zealand soil
- people on a vessel in New Zealand waters
- people on a passage between New Zealand ports
- overseas residents in New Zealand
- overseas visitors in New Zealand
- people in diplomatic residences including housekeeping staff, uniformed military personnel, and members of diplomats' families
- overseas military personnel and their families located in New Zealand on census night (including people on our territorial waters).

New Zealand residents who are not in the country on census night are not included in the census.

What geographic area did the census cover?

The 2023 Census covered the Te Ika-a-Māui / North Island, Te Waipounamu / South Island, Rakiura / Stewart Island, Aotea / Great Barrier Island, and the Rēkohu / Chatham Islands, plus offshore islands, including the Kermadec Islands, Manawatāwhi / Three Kings Islands, Tūhua / Mayor Island, Mōitī Island, Moutohorā Island, Moutere Hauriri / Bounty Islands, Tini Heke / Snares Islands, Moutere Māhue / Antipodes Islands, Motu Maha / Auckland Islands, and Motu Ihupuku / Campbell Island.¹

Counts of people on Ross Dependency were taken but are not included in the New Zealand population count.

¹ Some islands may have more than one te reo Māori name.

How was data collected in the 2023 Census?

For the 2023 Census there were changes made to make it easier for people to be counted. Under the new model the collection processes put more emphasis on field-based activities and paper forms than in the 2018 Census. There were approximately twice as many census collectors compared with 2018.

More resources were directed to areas with higher proportions of groups that have historically been underrepresented in census data. Approximately 30 percent of dwellings were selected to have census forms hand-delivered by census collectors. Census collectors were able to offer support to people to complete census forms. The remaining 70 percent of dwellings were mailed paper forms with a letter containing an internet access code, providing options to complete the census online or on paper, or a letter only containing an internet access code to complete the census online. Anyone who did not receive paper forms or a visit from a census collector could request these.

Field follow-up visits were planned earlier than in 2018, to offer help as quickly as possible to people who had not yet responded. For more information on the changes to the collection model and delivery, see [Collection model for the 2023 Census](#) and [Field collection strategies and operations for the 2023 Census](#).

For the 2023 Census, there was the introduction of Te Mana Whakatipu (iwi-led collections) to build data collection and analysis capabilities. Iwi-led collections were piloted in three locations: Far North (with Ōhūa iwi collective), Gisborne (with Toitū Tairāwhiti iwi collective), and the Eastern Bay of Plenty (with Te Whānau ā Apanui in their rohe). For more information, see [Field collection strategies and operations for the 2023 Census](#).

Due to Cyclone Gabrielle and other severe weather events in early 2023, collections were paused, and changes were made to collection processes. This enabled people to focus on their immediate wellbeing and respond to the impacts of the cyclone and other severe weather events before completing their census. For more information, see [Field collection strategies and operations for the 2023 Census](#). For potential effects of the cyclone on data quality see [Data sources for 2023 Census](#) and [2023 Census information by concepts](#).

A programme of communication and engagement was undertaken to educate the public on the value of the census, increase trust and confidence, and encourage response. Assisted completion events and assisted completion locations were set up across the country, where people could come and seek support to complete their census. Supporting and marketing materials were provided in five alternate formats and 29 languages. A bilingual census form was also offered, in te reo Māori and in English. For more information see [Communications, marketing, and engagement strategies for the 2023 Census](#).

How was everyone counted in the 2023 Census?

The 2023 Census was a combined model by design, where data collected through census responses was combined with alternative data sources. Census responses were prioritised first, with alternative data sources used only when there was no response on a census form. We used administrative (admin) data to add records to the 2023 Census file when it was appropriate to do so. We also used admin data, data from previous censuses, and statistical imputation to fill gaps in census variables.

[Methodology for using admin data to count people in the 2023 Census](#) and [Using a combined census model for the 2023 Census](#) have more information on how everyone in New Zealand was counted.

Who must fill in a census form?

Everyone who is in New Zealand on census night is required to complete a census form under the [Data and Statistics Act 2022](#).

How do you protect people's privacy?

Several methods are used to protect the privacy and confidentiality of individuals who fill in census forms or whose admin data has been included in the census dataset.

Under the provisions of the [Data and Statistics Act 2022](#), we must ensure that any statistical information published does not identify particulars about any individual or entity. To comply with this, the data is made confidential, balancing the need to protect individuals' details while providing useful information for users. Census data is rounded to prevent identification of any person, family, household, or dwelling. Some cells of data are not shown if the numbers are too small. These are marked as 'confidential'.

We usually review our confidentiality rules after each census and update them when necessary. For more information on the latest confidentiality rules see [Applying confidentiality rules to 2023 Census data and summary of changes since 2018 and 2013 Censuses](#) and [Methodological standard for confidentiality in the 2023 Census](#).

We also consider privacy when we add admin data to the census dataset. For more information on the measures and actions that are taken to ensure privacy, see [Privacy impact assessment for the use of admin data in the 2023 Census](#). For more information on how data is collected and processed, see [Processing and analysing the quality of 2023 Census data](#).

How do you know how many people the census missed?

Stats NZ has undertaken a Post-enumeration Survey (PES) after each census since 1996. The PES is a sample survey carried out at approximately 16,500 private dwellings soon after census day and

provides the official estimate of how many people were missed or counted more than once in the census. See [2023 Post-enumeration Survey](#) for more information on the 2023 PES.

Interim coverage rates are used until the official coverage rates are released by PES. These are provisional and unofficial counts of how many people the census missed based on the best estimate of the population on census day. For more information on interim coverage rates and how their use compares with previous censuses, see [Interim coverage rates, collection response rates, and data sources for the 2023 Census](#).

How did you decide what to include in the census?

To determine census content, we:

- undertook public engagement and consultation – these were the first steps in the 2023 Census content development process
- investigated whether information needs could be met from other data sources
- carried out survey development work, including further research, development of the questionnaires, and testing (including cognitive testing of questions, and two large-scale tests in 2021 and 2022)
- considered questionnaire constraints, real-world change, respondent burden, classification reviews, and international trends.

The topics to be included in the 2023 Census were reviewed to better reflect our customers' information needs. We undertook a limited review of existing content and considered potential new topics for inclusion.

Proposed topics and changes to existing topics were evaluated and ranked using a set of criteria, for example, whether the census is the most appropriate information source and whether good quality data can be produced. It was not possible to include all topics or changes to existing topics proposed during consultation and engagement. The amount of content that can be included in a census is limited by constraints such as questionnaire length and respondent burden.

For more information on content development, the criteria used, and the content changes made for 2023, see [2023 Census: Final content report](#). For more information on how questions were developed, response options, and online and paper forms, see [Design of forms for the 2023 Census](#). For the English and bilingual individual and dwelling paper forms (including guide notes), see the [Stats NZ Store House](#).

Gender, sex, and LGBTIQ+ concept changes

New concepts collected for the 2023 Census were gender, sexual identity, and variations of sex characteristics. These, along with sex at birth, were used as input variables to create two new derived variables: cisgender and transgender status, and Rainbow/LGBTIQ+ indicator.

In previous censuses we collected sex, with no further clarification of what this meant. For the 2023 Census we collected both gender and sex at birth.

Gender is the default concept used for all 2023 Census outputs. Gender data should be used in most cases when wanting to disaggregate between the male, female, and another gender populations.

Sex at birth data has been used for the derived outputs of cisgender and transgender status, and the Rainbow/LGBTIQ+ indicator, as well as produced for some specific output tables. Use of this concept is recommended where there is a specific need to disaggregate males and females at birth.

These new concepts were added to the 2023 Census to allow people to accurately respond to the census, see themselves and their communities in the data, and inform better decision-making and provision of services for Rainbow communities. For more information on the collection of these concepts see [Data standard for gender, sex, and variations of sex characteristics](#), [Statistical standard for sexual identity](#) and [Gender, sex, and LGBTIQ+ concepts in the 2023 Census](#).

Some concepts are affected by the updated standard.

Families and households, that were previously defined and classified by sex now use gender. For example, the classification of type of couple has changed. Previously there were two couple record types: 'Opposite-sex couple' and 'Same-sex couple' (categorised as 'Male couple' or 'Female couple'). Now, there are five couple record types:

- 1 Female-male couple
- 2 Female couple
- 3 Male couple
- 4 Another gender combination couple
- 5 Couple type by gender unidentifiable.

Additionally, information is now collected on the gender of absentees rather than their sex.

The number of children born is still collected for individuals whose sex at birth was recorded as 'Female'.

Other new questions

Number of census night occupants was reinstated as a question on the census dwelling form, to improve data quality and increase efficiency for field collection and processing. In 2018, number of census night occupants was derived by counting the number of individual forms filled out at a dwelling and the number of names listed on the dwelling form. This will only be available in the Integrated Data Infrastructure and from customised data requests.

Two new questions were added to the individual form for the 2023 Household Disability Survey. The 2023 Household Disability Survey is a post-censal survey with a sample selected from census respondents:

- A new disability-related question was added called self-reported limiting health conditions (in addition to the existing activity limitations questions). This was only used for the sample selection for the 2023 Household Disability Survey and is not included in the data output for the 2023 Census.
- The phone number question was reinstated for the 2023 Census, which enabled us to contact people by phone to participate in the Household Disability Survey and is not included in the data output for the 2023 Census.

Understanding data quality

This section answers questions people commonly ask Stats NZ about census data quality, such as how data quality is managed, and how we ensure data is fit for use. It includes links to information on the overall quality of the 2023 Census data, and the quality of specific concepts.

How do you prioritise which topics are most important?

Each output concept is assigned a priority level: priority 1, 2, or 3. These values are used to prioritise Stats NZ resources according to the most important information needs and help determine such things as placement of questions on the census forms, the determination of mandatory fields for the online form, processing of data, data analysis efforts, and field design. That is, when considering quality (accuracy, relevance, timeliness, consistency, interpretability, and accessibility), time, and resources, priority 1 concepts take precedence over priority 2 and priority 3 concepts.

For a full list of priority levels of concepts, see the appendix in [2023 Census: Final content report](#).

How do you ensure census data is fit for use?

During our data analysis phase, we compared the data against what was expected, undertook a series of checks on each concept and variable, and investigated and resolved data quality problems where possible. The scale of a problem and the priority level of a concept were considered when deciding on the resolution of data quality problems. It is not possible, however, to discover or fix every data quality problem during the analysis phase, particularly given the wide variety of uses of census data.

During the design and analysis phase of the 2023 Census, we partnered with the Data Iwi Leaders Group (DILG) to develop methodological changes and resolve issues particularly those relating to Māori and iwi data. There were also dedicated specialists focusing on iwi manual data coding.

At the end of this analysis phase, a quality rating was assigned to each concept using a quality rating scale. For more information, see [What are data quality ratings?](#) below.

The quality rating assigned to each census concept by Stats NZ and any limitations and recommendations for the use of the data is shown in [Data quality ratings for 2023 Census variables](#).

For more information on the analysis phase, see [Processing and analysing the quality of 2023 Census data](#).

Each census, we collaborate with our customers to understand their information needs and review our products and services mix. For more information, see the [2023 Census products and services](#) webpage.

What are data quality ratings?

For the 2023 Census, a data quality assurance framework was used to identify and assess data quality concerns. The concepts were analysed using a quality rating scale composed of three metrics:

- metric 1 – data sources and coverage
- metric 2 – consistency and coherence
- metric 3 – accuracy of responses.

An overall rating to each concept was assigned by taking the lowest score the concept received from the three metrics. The ratings for each metric are: very high, high, moderate, poor, and very poor.

Data sources and coverage (metric 1) calculates a score by rating the overall quality of the data sources used. This aims to:

- give customers clarity on what sources have gone into the combined output for each census concept
- show how the rating given to a source (which is based on the quality of the source) will then impact the total score (and quality) of a variable
- calculate an approximation of 'missingness' (gaps in data).

Consistency and coherence (metric 2) looks at comparability of the census with expected trends and other data collections. We consider the incorporation of other sources of data to the census data.

Accuracy of responses (metric 3) relates to the accuracy of final output values produced from respondent data. This includes aspects such as coding, level of detail/classification, response accuracy, and any other quality issues identified through analysis. Note that metric 3 is now labelled 'accuracy of responses' but was referred to as 'data quality' in the 2018 Census.

Quality ratings for derived variables are dependent on the quality of the input variables. Where quality ratings are produced for derived variables, we consider the quality of the various input variables, and the degree to which they contribute to the derived variable.

For more information on the data quality assurance framework, including the 2023 Census quality rating scale, see [Data quality assurance in the 2023 Census](#).

The quality rating assigned to each census concept by Stats NZ and any limitations and recommendations for the use of the data is shown in [Data quality ratings for 2023 Census variables](#).

What are possible sources of error?

The census covers the entire population of New Zealand and is not subject to sampling error. Sampling error occurs when we survey a sample of people in the population, but the group surveyed is not representative of the population of interest. However, census data may be subject to non-sampling errors resulting from respondents, collection, processing, or coverage.

The census is subject to respondent error because it is self-administering. That is, we have designed it for respondents to complete without an interviewer. Examples of respondent error include:

- misunderstanding a question
- accidentally or purposefully marking the wrong box
- giving a partial response or no response to census questions that were relevant to them
- providing more than one inconsistent response to a single-response question (such as answering both yes and no to a yes/no question).

To minimise these errors, the census forms are designed so that questions are as easy to understand and as simple to answer as possible. Online census forms also help minimise respondent errors by:

- ‘piping’ previous responses (that is, copying an earlier response – for example, copying a respondent’s usual residence address across to relevant sections later in the same online census form, so that a respondent doesn’t need to type it in multiple times)
- routing respondents to appropriate questions
- alerting respondents where their responses are not valid
- providing suggestions as respondents start typing text responses
- including an iwi affiliation map to help people pick the right iwi and rohe (region).

For more information on the online form, see [Design of forms for the 2023 Census](#).

Other resources were also available to help individuals complete their census forms, including:

- guide notes (included with paper forms, and available online)
- other online help (including e-queries)
- a toll-free census helpline number
- assisted completion events and locations.

It is important that Stats NZ makes completing the census accessible, so we get an accurate and representative picture of New Zealand. For more information on how people were supported to complete their census, see the section [How was data collected in the 2023 Census?](#)

To minimise individuals intentionally distorting information, we communicated the importance of the census through a variety of media channels – such as television, radio, the internet (including social media), and newspapers – and through community engagement. For more information see [Communications, marketing, and engagement strategies for the 2023 Census](#).

Collection errors are errors made when census information (including access codes) and forms are delivered to, or collected from, dwellings in the census dwelling frame (a list of all private and non-private dwellings in New Zealand). These could include assigning a dwelling to an incorrect meshblock, misidentifying a dwelling as occupied or unoccupied, or incorrectly classifying a dwelling as private or non-private. We have checks and balances to identify and fix these errors, see [Creating the census dwelling frame for the 2023 Census](#) for more information.

Examples of errors that can occur during data processing include incorrectly classifying responses, and misrecognising written responses. Checks are made during data processing, to identify errors and correct them where necessary. A data analysis phase is run alongside the data processing phase, where the data is checked further, to ensure that it meets quality standards, and is fit for use. More information on these phases is available in [Processing and analysing the quality of 2023 Census data](#).

While we aim to collect information on everyone living in New Zealand, we may miss some people and dwellings, and some people and dwellings may be counted more than once. Our collection processes seek to minimise these errors. In most censuses, we miss more people than are overcounted, which results in a net undercount. This is measured by the PES. For more information see [How do you know how many people the census missed?](#)

What about missing forms or questions that aren't answered?

Census forms are combined with admin data to create the 2023 Census dataset. Admin data is data collected by government and non-government organisations for operational purposes, such as births, tax, health, and education records. Where we have confidence we had not received a census form from someone who should be counted, and have a high-quality admin record, they are added to the dataset as admin enumerations to make sure population counts are representative.

Admin data, data from the 2018 and 2013 Censuses, and statistical imputation is also used to fill in missing characteristics of people and dwellings. For more information on these processes, see:

- [Methodology for using admin data to count people in the 2023 Census](#)
- [Editing, data sources, and imputation in the 2023 Census](#)
- [Linking 2023 Census responses to the Integrated Data Infrastructure](#)
- [Predicting usual residence address from admin data in the 2023 Census](#)

- [Data sources and imputation for Māori descent in the 2023 Census](#)
- [Methodologies for filling gaps in gender and sex at birth concepts for the 2023 Census](#)
- [Processing and analysing the quality of 2023 Census data](#)
- [Data sources and methodology for iwi affiliation in the 2023 Census](#)
- [Data sources and imputation for cigarette smoking behaviour in the 2023 Census.](#)

Information on our approach will also be available in upcoming publications (note that titles and release dates are prospective and subject to change):

- *Families and households in the 2023 Census: Data sources, family coding, and data quality* (November 2024)
- *Producing family and household data by ethnicity and Māori descent in the 2023 Census* (November 2024).

For information on how we adjusted for missing information for specific concepts, see [2023 Census information by concepts](#).

What is statistical imputation?

Statistical imputation is a process for entering a value for a specific data item where the response is missing or unusable. The term ‘imputation’ refers to values that result from a statistical process, in contrast to our methods of deriving values from real information about a person or dwelling (for example, from previous censuses or from admin data sources).

The main imputation method used is donor imputation. Where other information is not available for a census attribute, such as age or gender, the CANadian Census Editing and Imputation System (CANCEIS) is used to fill in the missing information. CANCEIS is a software system developed by Statistics Canada that uses nearest-neighbour imputation methodology. CANCEIS finds a donor record (the ‘donor’) similar to the person with missing information (the ‘donee’) using matching variables such as age, gender, and other variables relating to the missing information. The method then copies the information from the donor to fill in the missing donee information.

For more information see [Editing, data sources, and imputation in the 2023 Census](#).

What is deterministic derivation?

Deterministic derivation is when a value from a census variable can be used to inform a missing value in another census variable. For example, a valid iwi affiliation value can be used to inform a value for Māori descent.

Is all data available for use regardless of data quality?

Concepts with a quality rating of poor or higher are included in standard Stats NZ products and are also available for use in customised data requests, and microdata.

This means all 2023 Census concepts are being released as they have a data quality rating between poor and very high. There are some data cautions and restrictions on the use of data for some concepts (for example, they are used down to territorial authority level only). These are outlined in [2023 Census information by concepts](#).

Data quality may vary by geography, by populations with lower response rates, and by concepts, particularly those without any alternative data sources.

For information about the data sources used for the 2023 Census, including subnational breakdowns of the data sources used for each concept and any potential effects of Cyclone Gabrielle on data quality, see [Data sources for 2023 Census](#) and [2023 Census information by concepts](#).

The quality rating assigned to each census concept by Stats NZ and any limitations and recommendations for use of the data is shown in [Data quality ratings for 2023 Census variables](#).

In the 2018 Census some concepts had a quality rating of very poor and were not included in standard Stats NZ products. See [What concepts were not released from the 2018 Census?](#) for a list of these concepts and the implications for time-series data.

Microdata is unit record data accessible through the Data Lab. Accessing this microdata requires completing an [application process](#).

[Customised data services](#) and [Te Ara Takatū](#) have customised datasets provided to iwi and iwi-related organisations.

Does data quality differ depending on the data source?

Data quality can vary depending on the data source. For example, data from imputation may be of lower quality than admin data or historical census data. Most of the 2023 Census dataset comes from responses to census forms, and data from other sources (such as imputation) only makes up a small percentage of the data.

[Data quality assurance in the 2023 Census](#) explains how ratings for alternative sources are determined.

To see what data sources we used for each concept, see [Data sources for 2023 Census](#). Information on the rating of the different data sources for each concept is available in [2023 Census information by concepts](#).

For more information on alternative data sources, see:

- [Editing, data sources, and imputation in the 2023 Census](#)
- [Data sources and imputation for Māori descent in the 2023 Census](#)
- [Methodologies for filling gaps in gender and sex at birth concepts for the 2023 Census](#)
- [Data sources and methodology for iwi affiliation in the 2023 Census](#)
- [Data sources and imputation for cigarette smoking behaviour in the 2023 Census.](#)

Information on our approach will also be available in the upcoming publications (note, titles and release dates are prospective and subject to change):

- *Families and households in the 2023 Census: Data sources, family coding, and data quality* (November 2024)
- *Producing family and household data by ethnicity and Māori descent in the 2023 Census* (November 2024).

Should I treat data differently depending on its source?

Unless noted as a data quality concern for a specific concept – see [2023 Census information by concepts](#) – it is recommended that the dataset be treated as a whole, regardless of data source. That is, while datasets are composed of information from census forms, admin data, historical data, and/or imputed data, we recommend not separating the data by source, unless this is specifically noted in the concept’s information.

Using census data

Below are answers to some questions people commonly ask Stats NZ about using the census data.

How is census data different from survey data?

The most important difference is that a census sets out to include information from every person in the country. Therefore, it is not subject to sampling errors that occur in sample surveys (see [What are possible sources of error?](#)).

The census includes a broad range of topics providing good contextual information for individuals, families, and households, unlike other surveys, which have a narrower focus. However, in order to cover such a broad range of topics and maximise response rates, census questions are quick and simple and may not gather information in as much detail or in as much depth as other methods.

The population coverage of census means information is available in standard published products for much smaller geographic areas – down to statistical area 1 (SA1) and available via customised data requests down to meshblocks (see [Statistical standard for geographic areas 2023](#)) – and for small population groups, for example ethnic groups. Sample surveys only cover a small proportion

of the population, so may not provide detailed data for smaller populations or geographic groupings.

Respondents complete the forms themselves. Like other self-administered questionnaires, this can lead to more truthful responses because the interviewer cannot influence the respondent. However, respondents might not complete the form correctly (for example, writing illegibly, providing incoherent answers, or responding facetiously) or may misunderstand the question, which may lead to issues or errors with the data.

For the 2023 Census admin data, historical data from the 2018 and 2013 Censuses, and imputed data to was used to fill in missing information. While there are improvements to the dataset, there are also some limitations for certain concepts (see [2023 Census information by concepts](#) for more information).

We advise you to understand the strengths and limitations of census data compared with other survey methods before deciding which to use or how they can be used together.

Is 2023 data comparable with 2018 and 2013 Census data?

Several changes were made for the 2023 Census including new and changed questions on the forms, and different collection operations.

For the 2018 Census we introduced the inclusion of admin and historical census data and made more extensive use of statistical imputation (a combined census model). This was due to lower-than-expected response rates and differed from the 2013 Census which largely used only responses from census forms (with some limited use of imputation).

The 2023 Census has also used a combined census model. This means data from the 2018 and 2023 Censuses is generally very comparable, but care should be taken in understanding the methodological change when comparing data from these censuses with earlier collections.

We recommend users consult [2023 Census information by concepts](#) for their concept of interest and, when performing time-series comparisons and analysis, consider using proportions as the point of comparison with earlier collections rather than specific numbers or percentage changes across censuses.

Gender and sex timeseries

The 2018 Census asked 'Are you?', with 'Male' and 'Female' as the response options. While data collected from this question was output as sex, the question was not labelled as such on forms and was open to respondent interpretation as to whether gender or sex was being asked.

The 2023 Census asked questions on both gender and sex at birth. Gender will use previous census sex data for time-series comparison, but there will be no time series for the 'Another gender' category.

Any time-series comparison between gender and sex should be done with caution and awareness of the conceptual differences between the two variables. See [Data standard for gender, sex, and variations of sex characteristics](#) for further information.

Time-series data for sex at birth will use previous census sex data for time-series comparison.

The way a table or graph displays a time-series break will differ between products and will be defined in each product's footnotes. More information can be found in the 2023 Census information by concepts for [gender](#) and [sex at birth](#).

Are any concepts not being released from the 2023 Census?

All concepts are being released from the 2023 Census.

There are some data cautions and restrictions on the use of data for some concepts (for example, only using down to territorial authority level). These are outlined in [2023 Census information by concepts](#).

What concepts were not released from the 2018 Census?

Iwi affiliation data from the 2018 Census had a quality rating of very poor and was not published. Under the [Mana Ōrite Relationship Agreement](#), Stats NZ and the Data Iwi Leaders Group worked together to develop appropriate methods to address the high level of missing iwi data in the 2018 Census. While this work resulted in usable [iwi affiliation estimated counts](#), the estimates are not included in census time series due to the different methodology and because they are not official 2018 Census counts.

There were four variables in the families and households suite that had a quality rating of very poor in the final quality assessment. These variables were not included in standard Stats NZ products but were available through customised data requests and in microdata. These variables were:

- type of couple
- family type with type of couple
- age of older partner in same-sex couple
- age of younger partner in same-sex couple.

There were two absentee variables that had a quality rating of very poor in 2018. These variables were not included in standard Stats NZ products but were available through customised data requests and in microdata. These variables were:

- absentee in New Zealand on census night
- absentee time away from New Zealand.

In 2023 the absentee variables will be published, but comparisons to 2018 time-series data will not be possible. See the 2023 Census information by concept for [absentees](#) for more information.

Is iwi data available?

In 2023 iwi affiliation data will be published, but comparisons to 2018 time-series data will not be possible. See [2023 Census information by concepts](#) for details on [iwi affiliation](#) including data usage and its overall quality rating.

During the design and analysis phase of the 2023 Census, we partnered with the Data Iwi Leaders Group (DILG) to develop methodological changes and resolve issues, particularly those relating to Māori and iwi data, which has resulted in an improved count of iwi.

[Te Whata](#) has iwi data tailored specifically for iwi by iwi, provided by Te Kāhui Raraunga Charitable Trust on behalf of the Data Iwi Leaders Group.

For additional information see the [2023 Census products and services for iwi Māori](#).

What does it mean for time-series comparisons if you used past census data to fill gaps in the 2023 Census?

Most concepts that use data from the 2013 or 2018 Censuses are largely stable and unlikely to have changed since we collected the data. As such, data from historical censuses can be appropriately used to fill in missing information for some variables. For example, 2018 Census responses to birthplace and years since arrival in New Zealand were used to fill gaps in the 2023 Census. We also used the usual residence provided in the 2018 Census as the respondent's location for usual residence five years ago. This means that, for the concepts which use historical census data sources, including data from the 2013 and 2018 Censuses improves the quality of the dataset (as compared with no response or imputing the response).

There are, however, some concepts where past census data is used for characteristics that can change over time. For example, we used data from the 2013 and 2018 Censuses to fill gaps for religious affiliation. For characteristics such as this, the possibility for change is accounted for in the data source ratings when historical data is used, and it was considered when evaluating consistency and coherence of data.

For more information on data sources and issues with comparability for specific concepts, see [2023 Census information by concepts](#).

To what geographic levels can I get census data?

Data from the 2023, 2018, and 2013 Censuses is available at a range of geographic levels, including a new statistical geography statistical area 3 (SA3), that allows aggregations of population between the SA2 geography and territorial authority geography.

Information including geographic information for censuses before 2013 is available as a customised request. See [Customised data services](#) and [Te Ara Takatū](#) for customised datasets provided to iwi and iwi-related organisations.

The [Stats NZ Geographic boundary viewer](#) map shows the different geographic levels and how they relate to each other.

[Geographic hierarchy](#) and [Statistical standard for geographic areas 2023](#) contain more information on geographic areas, their definitions, and classifications.

Census data is available in three main ways:

- as standard published outputs available from our website, www.stats.govt.nz
- as customised data available on request, see [Customised data services](#) and [Te Ara Takatū](#)
- as unit record data in the [Integrated Data Infrastructure](#) (IDI) (which has restricted access, see also [Apply to use microdata for research](#)).

The geographic levels available from these three sources are summarised in table 1 below.

Table 1

Geographic levels available from census data		
Geographic level	Standard published output	Customised request/Te Ara Takatū/IDI
Meshblock		√
Statistical area 1 (SA1)	√	√
Statistical area 2 (SA2)	√	√
Statistical area 3 (SA3) ⁽¹⁾	√	√
Urban rural (UR) ⁽²⁾	√	√
Regional council	√	√
Regional council constituency		√
Māori constituency		√
Territorial authority	√	√
Ward	√	√
Māori ward		√
Community board		√
Auckland local board	√	√

General electorates ⁽²⁾	√	√
Māori electorates ⁽²⁾	√	√
Island indicator	√	√
Statistical area (provincial districts) ⁽³⁾		√
Health regions ⁽⁴⁾	√	√
Health districts ⁽⁴⁾	√	√
District health boards		√
User defined ⁽⁵⁾		√
<ol style="list-style-type: none"> 1. This is a new geographic area. For more information on this geography see Statistical standard for geographic areas 2023. 2. Geography only used in some limited products. 3. Statistical areas were established in 1961 and are broad geographic regions used for historical comparability of data from these areas. For more information see Statistical area (Provincial districts) V2.0.0. 4. New for 2023 Census (replaces district health board). 5. Such as police districts, radius from a specific point, any combination of standard geographies. <p>Source: Stats NZ</p>		

Can I get microdata / unit-record-level data?

In addition to standard products and customised requests, microdata is available to approved researchers. Microdata is unit-record-level data or data corresponding to information at the respondent level. All statistical data is presented in a way that does not identify the particulars about a person, dwelling, or household. This means the microdata is anonymised for use in the Data Lab facilities across both the [Integrated Data Instructure](#) (IDI) and stand-alone datasets.

The application process for Data Lab access has strict eligibility criteria based on the requirements of the [Data and Statistics Act 2022](#). For more information on applying for access to microdata in the Data Lab see [Apply to use microdata for research](#).

For further assistance with extracting data in the IDI see [customised data requests](#) and [Te Ara Takatū: Census data for iwi and iwi-related groups](#).

Which population count should I use?

For some output concepts, data about individuals/people can be reported in two ways:

- census usually resident population count

- census night population count.

Most often, the census usually resident population count is used. This is the count of all people who usually live in an area of New Zealand and are present in New Zealand on census night. This count excludes visitors from overseas and residents who are temporarily overseas on census night. People living in New Zealand who are away from their usual address on census night are repatriated back to the address or area where they usually live, and form part of the census usually resident population count of the area.

Used less frequently, the census night population count is a count of all people present in a given area of New Zealand on census night. The census night population count includes visitors from overseas in the area on census night, residents of that area in the area on census night, and residents of other areas of New Zealand in the area on census night.

What is the difference between census counts, population estimates, projections, and administrative population census?

[Population statistics – user guide](#) has information on the differences between census counts, population estimates, and projections.

[Administrative population census](#) (APC) is an experimental output using a different methodology than what is currently used to produce the census or the official estimated resident population.

Why is the subject population important?

The subject population is the individuals, families, households, or dwellings to which concepts apply. For example, while the subject population for census night address is the census night population (as the question applies to everyone in New Zealand on census night), the subject population for years since arrival in New Zealand is the overseas born census usually resident population (as the question does not apply to people born in New Zealand or overseas visitors).

When interpreting census data, it is important for users to know what subject population the data is based on, so that any inferences drawn from that data are restricted only to that population group and not generalised outside that population group.

Table 2 lists the subject population(s) for each census concept. For changes to subject populations compared with the 2018 Census see [2023 Census information by concepts](#).

Table 2

Census concepts/topics by subject population	
Census concept/topic	Subject population
Absentees	<ul style="list-style-type: none"> • Number of absentees: occupied private dwellings • Absentee in New Zealand on census night: absentees from occupied private dwellings • Absentee – time away from New Zealand: absentees from occupied private dwellings who are away from New Zealand on census night
Access to telecommunication systems	Households in occupied private dwellings
Activity limitations	Census usually resident population count aged 5 years and over
Age	<p>Census usually resident population count</p> <p>This question applies to all people in New Zealand on census night. However, Age is usually output for the census usually resident population count.</p>
Birthplace	<p>Census usually resident population count</p> <p>This question applies to all people in New Zealand on census night. However, Birthplace is usually output for the census usually resident population count.</p>
Census night address	Census night population count
Census night population count	Census night population count
Census usually resident population count	Census usually resident population count
Child dependency status	<ul style="list-style-type: none"> • Dependent child under 18 indicator: Children in families in households in occupied private dwellings • Dependent young person indicator: Children in families in households in occupied private dwellings
Cigarette smoking behaviour	Census usually resident population count aged 15 years and over

Census concepts/topics by subject population	
Census concept/topic	Subject population
Cisgender and transgender status	Census usually resident population count aged 15 years and over
Combined parental income for couples with child(ren)	Couples with children in occupied private dwellings
Couples	<ul style="list-style-type: none"> • Type of couple by gender: Couples (with or without children) in households in occupied private dwellings • Age of female partner in different-gender couple: Different-gender couples with a female partner (with or without children) in households in occupied private dwellings • Age of male partner in different-gender couple: Different-gender couples with a male partner (with or without children) in households in occupied private dwellings • Age of partner of another gender in different-gender couple: Different-gender couples with a partner of another gender (with or without children) in households in occupied private dwellings • Age of older partner in same-gender couple: Same-gender couples (with or without children) in households in occupied private dwellings • Age of younger partner in same-gender couple: Same-gender couples (with or without children) in households in occupied private dwellings
Dwelling count	All dwellings
Dwelling occupancy status	All dwellings
Dwelling type	Occupied dwellings (private and non-private)
Educational institution address	Census usually resident population count studying (part time or full time) in any educational institute, from early education (childcare) to tertiary education
Ethnicity	<p>Census usually resident population count</p> <p>This question applies to all people in New Zealand on census night. However, Ethnicity is usually output for the census usually resident population count.</p>

Census concepts/topics by subject population	
Census concept/topic	Subject population
Emergency and transitional housing indicator	Occupied dwellings (private and non-private)
Extended family type	Extended families in households in occupied private dwellings
Family	<ul style="list-style-type: none"> • Age of youngest child in family: Families with child(ren) in households in occupied private dwellings • Age of youngest dependent child in family: Families with dependent child(ren) in households in occupied private dwellings • Family type: Families in households in occupied private dwellings • Family type by child dependency status: Families in households in occupied private dwellings • Family type by number of children: Families in households in occupied private dwellings • Family type by type of couple by gender: Families in households in occupied private dwellings • Gender of sole parent: One-parent families in households in occupied private dwellings • Number of adult children in family: Families with child(ren) in households in occupied private dwellings • Number of children in family: Families with child(ren) in households in occupied private dwellings • Number of people in family: Families in households in occupied private dwellings
Family and household unit counts	<ul style="list-style-type: none"> • Families in occupied private dwellings • Extended families in occupied private dwellings • Households in occupied private dwellings
Fuel types used to heat dwellings	Occupied private dwellings
Gender	<p>Census usually resident population count</p> <p>This question applies to all people in New Zealand on census night. However, gender is usually output for the census usually resident population count.</p>

Census concepts/topics by subject population	
Census concept/topic	Subject population
Hours worked in employment per week	Employed census usually resident population count aged 15 years and over
Households	<ul style="list-style-type: none"> • Household composition: Households in occupied private dwellings • Household composition by child dependency status: Households in occupied private dwellings • Age of oldest person in household: Households in occupied private dwellings • Age of youngest child in household: Families with children in households in occupied private dwellings • Age of youngest dependent child in household: Families with dependent children in households in occupied private dwellings • Number of dependent children in household: Households in occupied private dwellings • Number of usual residents aged 15 and over in household: Households in occupied private dwellings • Number of usual residents aged under 15 in household: Households in occupied private dwellings • Number of usual residents in household: Households in occupied private dwellings
Housing quality	<ul style="list-style-type: none"> • Access to basic amenities: Occupied private dwellings • Dwelling dampness indicator: Occupied private dwellings • Dwelling mould indicator: Occupied private dwellings
Individual home ownership	Census usually resident population count aged 15 years and over
Individual's role in family nucleus	People in households in occupied private dwellings
Industry	Employed census usually resident population count aged 15 years and over
Iwi affiliation	Māori descent census usually resident population count
Job search methods	Unemployed census usually resident population count aged 15 years and over
Languages spoken	Census usually resident population count

Census concepts/topics by subject population	
Census concept/topic	Subject population
Main means of travel to education	Census usually resident population count studying (part time or full time) in any educational institute, from early education (childcare) to tertiary education
Main means of travel to work	Employed census usually resident population count aged 15 years and over
Main types of heating used	Occupied private dwellings
Māori descent	Census usually resident population count
Māori descent - electoral	Census usually resident population count
Number of census night occupants	All occupied dwellings
Number of children born	Female (sex at birth) census usually resident population count aged 15 years and over
Number of motor vehicles	Households in occupied private dwellings
Number of rooms and number of bedrooms	Occupied private dwellings
Occupation	Employed census usually resident population count aged 15 years and over
Private dwelling in a registered retirement village indicator	Occupied private dwellings
Qualifications: Highest qualification	Census usually resident population count aged 15 years and over
Qualifications: Highest secondary school qualification	Census usually resident population count aged 15 years and over
Qualifications: Post-school qualification field of study	Census usually resident population count aged 15 years and over

Census concepts/topics by subject population	
Census concept/topic	Subject population
Qualifications: Post-school qualification level of attainment	Census usually resident population count aged 15 years and over
Rainbow/LGBTIQ+ indicator	Census usually resident population count aged 15 years and over
Relationship status: Legally registered relationship status	Census usually resident population count aged 15 years and over
Relationship status: Partnership status in current relationship	Census usually resident population count aged 15 years and over
Religious affiliation	Census usually resident population count
Sector of landlord	Households in rented occupied private dwellings
Sector of ownership	Employed census usually resident population count aged 15 years and over
Sex at birth	Census usually resident population count This question applies to all people in New Zealand on census night. However, Sex at birth is usually output for the census usually resident population count.
Sexual identity	Census usually resident population count aged 15 years and over
Sources of extended family income	Extended families in private occupied dwellings
Sources of family income	Families in private occupied dwellings
Sources of household income	Households in private occupied dwellings
Sources of personal income	Census usually resident population count aged 15 years and over
Status in employment	Employed census usually resident population count aged 15 years and over
Study participation	Census usually resident population count

Census concepts/topics by subject population	
Census concept/topic	Subject population
Tenure of household	Households in occupied private dwellings
Total extended family income	Extended families in occupied private dwellings
Total family income	Families in occupied private dwellings
Total household income	Households in occupied private dwellings
Total personal income	Census usually resident population count aged 15 years and over
Unpaid activities	Census usually resident population count aged 15 years and over
Usual residence address	Census usually resident population count This question applies to all people in New Zealand on census night. However, data on usual residence is usually output for the census usually resident population count.
Usual residence five years ago	Census usually resident population count
Usual residence one year ago	Census usually resident population count
Variations of sex characteristics	Census usually resident population count aged 15 years and over
Weekly rent paid by households	Households in rented occupied private dwellings
Work and labour force status	Census usually resident population count aged 15 years and over
Workplace address	Employed census usually resident population count aged 15 years and over
Years at usual residence	Census usually resident population count
Years since arrival in New Zealand	Overseas-born census usually resident population count

What is the difference between Māori descent and Māori ethnicity?

Māori descent refers to whether a person is biologically descended from Māori, while Māori ethnicity refers to a person's self-identified cultural affiliation to the Māori ethnic group.

What is the difference between a dwelling and a household?

A dwelling is any building or structure (or its parts), that is used, or intended to be used, for human habitation. Dwellings can be permanent or temporary and include structures such as houses, motels, hotels, prisons, motor homes, huts, and tents.

There can be more than one dwelling within a building; for example, in an apartment building, each separate apartment or unit is considered an independent dwelling.

There are two types of dwellings:

- private (for example, houses, flats, and apartments)
- non-private (for example, hotels, hospitals, and prisons).

'Dwellings under construction' includes all private and non-private dwellings, such as hotels, residential care facilities, houses, flats, and groups or blocks of flats being built.

A household is either one person who usually resides alone, or two or more people who usually reside together and share facilities (such as for eating and cooking, or a living area and bathroom and toilet) in a private dwelling. Included are people who were absent on census night but usually live in a particular dwelling and are members of that household, as long as they were reported as absent by the reference person on the dwelling form or they completed their individual form elsewhere and included their usual residence address on that form.

With the use of admin data to fill in missing information, the count for total households equals the count for occupied private dwellings (excluding visitor-only dwellings, that is, private dwellings with no usual residents, such as holiday homes that were occupied on census night). See 2023 Census information by concepts for details on [dwelling occupancy status](#) and how this status is determined in the census.

The census collects information on families and households in occupied private dwellings. No family and household data is collected for those living in non-private dwellings.

How do you define families and extended families?

A family nucleus comprises a couple with or without child(ren), or one parent and their child(ren) whose usual residence is in the same household; the children do not have partners or children of their own living in that household. Included are people who were absent on census night but

usually live in a particular dwelling and are members of a family nucleus in that dwelling, as long as they were reported as being absent by the reference person on the dwelling form or the household summary page.

An extended family is a group of related people and consists of: a family nucleus and one or more other related people; or two or more related family nuclei, with or without related persons.

Families and households in the 2023 Census: Data sources, methodology, and data quality (to be published in November 2024) will have more information on families and extended families.

How do you define occupied and unoccupied dwellings?

See 2023 Census information by concepts for details on [dwelling occupancy status](#), including a detailed definition of 'occupied' and 'unoccupied' dwellings, and the use of admin data.

What is an absentee?

An absentee is identified on the online household set-up form or paper dwelling form as someone who usually lives in a particular dwelling but had not completed a census individual form there – because the person was elsewhere in New Zealand or overseas on census night. Such a person may have completed a census individual form elsewhere in New Zealand. (Note: People who completed an individual form elsewhere but are not listed as an absentee at their usual residence address are not considered 'absentees'). See 2023 Census information by concepts for more information on [absentees](#).

What is repatriation?

On census night, most people complete their individual forms at their usual residence. Some people, however, are somewhere else in New Zealand on census night (for example, staying in a hotel, a campground, in hospital, or at another private dwelling), and they complete their individual form at that location. In previous censuses, this meant that we would have limited information about them that would be linked to their usual residence or to their household. This is because we could only assign the information from these individual forms to a meshblock, rather than to their usual residence address.

In the 2018 Census, the 'repatriation' process was introduced and continued to be used in the 2023 Census. Repatriation is the linking of individual forms completed by people who were somewhere other than their usual residence on census night to their actual usual residence dwelling.

Some of these people are absentees, that is, listed as an absentee on the online household set-up form or paper dwelling form. In previous censuses, we would only have had the absentees' age, relationship to reference person, and whether they were in New Zealand or overseas on census night (and if overseas, for how long).

While this was used for family coding, there would not have been any more information about them. With repatriation, all the information on their individual form is linked to their actual usual residence dwelling. This includes information such as ethnicity, income, and qualifications, for example, of people in a specific family/household.

The introduction of repatriation has meant that we needed to change person record types.

What are person record types and absentee flags?

Each individual record is assigned a person record type. The person record type determines if the individual record is included in a particular subject population (for example, census usual resident population, or census night population).

For the 2023 Census, there are nine person record types:

- 1 Respondent overseas on census night – adult
- 2 Respondent overseas on census night – child
- 3 New Zealand adult
- 4 New Zealand child
- 5 Overseas adult
- 6 Overseas child
- 7 Absentee – in NZ or away from NZ < 12 months adult
- 8 Absentee – in NZ or away from NZ < 12 months child
- 9 Absentee – away from NZ >= 12 months.

Respondents overseas on census night are individuals who have completed an individual form in the 2023 Census but have been identified through admin data to have been out of the country on census night.

For the 2018 Census, information on respondents overseas was unavailable, so there were only seven record types:

- 3 New Zealand adult
- 4 New Zealand child
- 5 Overseas adult
- 6 Overseas child

- | | |
|---|--|
| 7 | Absentee – in NZ or away from NZ < 12 months adult |
| 8 | Absentee – in NZ or away from NZ < 12 months child |
| 9 | Absentee – away from NZ >= 12 months. |

In instances where an absentee has completed an individual form elsewhere and we have linked their individual form to their actual usual residence dwelling, they would now be a person record type 3 (New Zealand adult) or 4 (New Zealand child) instead of an absentee record. They can still be identified as absentees on census night, however, by using absentee flags.

Absentee flags include:

- | | |
|---|---|
| 0 | Not an absentee |
| 1 | Absentee on usual residence dwelling form (linked or not linked). |

A person who was at their usual residence on census night would have an absentee flag of 0. A person who was listed on a dwelling form or household summary page as being a usual resident absent on census night would have an absentee flag of 1.

In the 2013 Census information on absentee record types was unavailable so there were only five person record types:

- | | |
|---|-------------------|
| 1 | Absentee |
| 3 | New Zealand adult |
| 4 | New Zealand child |
| 5 | Overseas adult |
| 6 | Overseas child. |

What are derived variables?

Some census output variables are created from responses to individual questions or from a combination of responses given to two or more questions on the census form. These are called derived variables. For example:

- age is derived from the census question on date of birth
- cisgender and transgender status are derived from sex at birth and gender
- years since arrival is derived from month and year first arrived in New Zealand
- work and labour force status is derived from the questions on employment, hours worked, seeking work, job search methods, and availability for work.

For comparison, concepts such as gender and total personal income are not derived – that is, we directly ask for this information in questions specific to these concepts.

New derived variables in 2023 are:

- cisgender and transgender status
- emergency and transitional housing indicator
- extended families by ethnicity of at least one extended family member (total responses)
- extended families by Māori descent indicator of extended family members
- families by ethnicity of at least one household member (total responses)
- families by Māori descent indicator of family members
- households by ethnicity of at least one household member (total responses)
- households by Māori descent indicator of household members
- private dwelling in a registered retirement village indicator
- usual residence five years ago summary (RC)
- usual residence five years ago summary (TALB)
- usual residence one year ago summary (RC)
- usual residence one year ago summary (TALB)
- rainbow/LGBTIQ+ indicator.

New experimental derived variables in 2023 available only in the IDI and customised data requests are:

- education institution type
- Māori/English medium education indicator

In addition, census data includes some extra derived variables. These variables have originally been developed or defined by organisations outside of Stats NZ and will be made available in the IDI. These include some variables regularly released by Stats NZ, such as the household crowding index (Canadian National Occupancy Standard) and Jensen equivalised annual household income.

There is also a second new equivalised income for 2023 (OECD equivalised annual household income). Additionally, the NZDep index of socioeconomic deprivation and severe housing deprivation will be included with the census datasets.

What are classification levels?

Some census variables have multi-level classifications with broad categories at the top level that split into increasingly detailed categories at lower levels. For example, 'Private dwelling' at level 1 of the dwelling type classification splits into 'Separate house', 'Joined dwelling', and 'Other private

dwelling’ at level two. At level 3, ‘Separate house’ splits into ‘Separate house with one storey’ and ‘Separate house with two or more storeys’.

Data for variables with multi-level classifications is available at different levels of the classification. The level used in published tables may vary for different census products. In some census products (for example, Aotearoa Data Explorer) you can choose the classification level(s) you like. Sometimes there may be restrictions or recommendations for use that relate to a particular level.

See [2023 Census information by concepts](#) for more information on classifications and the ways in which data can be grouped.

What are recode variables?

Data may be published in different groupings of a variable – this is called a recode variable.

As an example: age is usually output in single year groupings but can be recoded to be output as age in 5-year groupings and life cycle groups (Under 15 years, 15–29 years, 30–64 years and 65 years and over).

For instance, someone aged 42 would be recoded to the 40–44 age group for age in 5-year groupings, and the 30–64 age group for life cycle groups.

Recodes function similarly to levels of a classification, that is, they are different ways of presenting the same data. However, each recode is a separate classification.

What are residual codes and how do you use them?

Missing and residual responses represent data gaps where respondents either did not provide answers (missing responses) or provided answers that did not fit predefined categories (residual responses). Possible residual categories for responses that could not be classified or did not provide the type of information asked for are:

- Response unidentifiable
- Response outside scope
- Not stated.

For some census questions, ‘Don’t know’, ‘Object to answering’, ‘Prefer not to say’, and ‘Refused to answer’ are valid responses, but are generally considered residual responses (depending on the concept) as they don’t correspond to the concept being measured.

In the 2023 and 2018 Censuses, responses that could not be given a valid value in the editing process are coded to a residual category and flagged for potential use of historical census data, admin data, or statistical imputation. Residual codes may remain in the data (even for concepts that

have data from alternative sources applied). Residual codes are not included in the counts for total people stated.

For information on missing and residual responses for individual concepts see [2023 information by concepts](#). For advice on how to use residual categories when calculating percentages see [How should I calculate percentages?](#)

What is total response data?

Several census questions give individuals the option to provide more than one response. We work out the total response count or percentage by counting each response given, for example, each ethnic group stated. This means the total response count may add up to more than the count of the subject population for that concept. When calculating percentages for categories within these concepts, they will most likely add to more than 100 percent.

Concepts that may be output as total response include:

- access to basic amenities
- access to telecommunication systems
- activity limitations
- ethnicity
- iwi affiliation
- job search methods
- languages spoken
- main types of heating
- religious affiliation
- sources of family income
- sources of extended family income
- sources of household income
- sources of personal income
- unpaid activities.

Some total response concepts can also be output as single and combined data, so units (for example, individuals and dwellings) are counted once in the category that applies to them. For example, for ethnicity, each individual is coded to a category that describes all their valid responses. For example, an individual who identified as both 'European' and 'Māori' would be coded to 'European/Māori' in the combination variable. This means that the total population will be equal to the subject population for that concept, as individuals are counted once only.

Examples of concepts that can be output as single and combination categories are:

- ethnicity
- languages spoken
- main types of heating.

How are total family, extended family, and household incomes worked out?

Total family and household incomes are derived from total personal income. Total personal income is the before-tax income of a person in the 12 months ended 31 March 2023. The information is collected as income bands rather than in actual dollars.

Total family income is derived by aggregating the midpoint of the band for each family member's total personal income aged 15 years or over. The representative value for each income band is the median value (half are above and half below) for those in that band of the more detailed Household Economic Survey (HES), which collects dollar income.

Household income and extended family income are calculated similarly to family income, except all people in the household or extended family aged 15 years and over are included in the calculation.

Why use income bands?

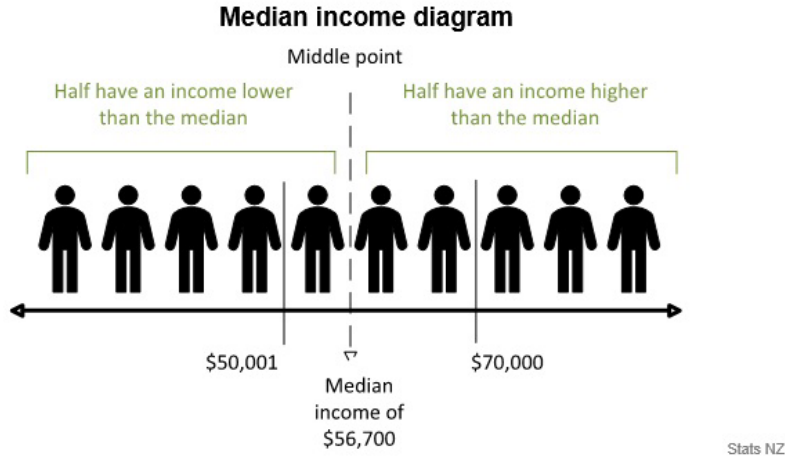
The census question on total personal income provides the respondent with a choice of income bands. This is because asking respondents to state their actual income can be a sensitive issue and will often result in a higher level of non-response to the question. Also, it is likely that non-response or respondent error to a question on the exact amount would be higher than for a question on the income band because many respondents may not know the exact amount but may find it easier to work out their income band. For consistency, data from other sources (for example, admin data) is also allocated to a band. Note that income bands have changed over time. See 2023 Census information by concepts for the changes to [total personal income](#).

How are median incomes worked out?

Median incomes are worked out where half of the population have income below the median (or middle point), and half have income above. Sometimes the middle point falls within an income band, so a more precise value for the median is estimated by assuming that the income values within the band are evenly spread across the band.

In the diagram below, the middle point is one-third of the way through the \$50,001–\$70,000 band, so the median income is one-third of the way between \$50,001 and \$70,000, which is \$57,600.

Median income values are rounded to the nearest hundred dollars. Percentage calculations for median incomes are calculated on the unrounded medians.

Figure 1: Median income diagram

Why are totals for some geographic areas different when comparing 2023 data with previous censuses?

Population changes throughout New Zealand lead to changes in geographic boundaries. We produce data from previous census years according to the current census's geographic boundaries to maintain comparability and allow time-series analysis of census data. This statistical process is called rebasing.

For 2023 Census products, all data, including data from the 2018 and 2013 Censuses, uses the same geographic boundaries. This allows users to compare people and dwellings in the same area between different censuses.

This means that totals for geographic areas, for example SA1s, SA2s, and regional council areas, may change between the censuses.

In the process of rebasing, each dwelling and individual within a meshblock or higher geography which has split or changed from the previous census, is identified and allocated to the new meshblock or geographic pattern. We use geographic coordinates of addresses where available in the rebasing process.

How should I calculate percentages?

When you calculate percentages using census data, it is important to follow these steps.

1. Ensure that the data reflects the correct subject population. For example, when calculating the percentage of regular cigarette smokers, the data needs to refer to the census usually resident population count aged 15 years and over, as this is the correct subject population for this concept.

2. Use the total stated population as the denominator for the calculation – this excludes residual categories ('Not stated', 'Refused to answer', 'Response outside scope', 'Response unidentifiable', and 'Not elsewhere included').
3. Where a total stated population specifically appears in the census table, we recommend you use this total stated population as the denominator.
4. Where a total stated population does not appear in the table, we recommend you calculate the total stated population to use as the denominator (as in point 2) by subtracting the residual categories from the total population (people, families, households, or dwellings) mentioned in the table.
5. Several concepts have categories that are valid responses and should not be excluded from the total stated population. For example:
 - number of children born – 'Object to answer' is a valid response and is part of the total stated population (it is a tick-box option on the form)
 - Māori descent – 'Don't know' is a valid response and is part of the total stated population (it is a tick-box option on the form)
 - religious affiliation – 'No religion' and 'Object to answer' are valid responses and are part of the total stated population (they are tick-box options on the form).
6. Exclude 'Not further defined' and 'Not elsewhere included' categories from the total stated population when they are used for cases where the information of interest was not provided. For example, if calculating the percentage of households who own the dwelling they live in with a mortgage, the 'Dwelling owned or partly owned, mortgage arrangements not further defined' category is excluded from the calculation. This calculation is:

$$\frac{\text{owned with a mortgage}}{\text{(owned with a mortgage + owned without a mortgage)}} * 100$$

7. When calculating percentage change over time, use the following formula:

$$\frac{(\text{latest year figure} - \text{base year census figure})}{\text{base year census figure}} * 100$$

Note: In published census data, percentages are usually rounded to one decimal place. When percentages are calculated for categories within total response concepts (concepts for which there can be more than one valid response), they will most likely add to more than 100 percent.

More information about 2023 Census

The following publications offer more information on the 2023 and past censuses, as well as definitions, metadata, and other explanatory information about 2023 Census data.

- [Introduction to the New Zealand Census](#) outlines the changes to this census including new and updated questions, and how we counted people. It also gives an overview of the census, including why we conduct a census and the census cycle.
- [Design of forms for the 2023 Census](#) explains how we developed the forms, online help, and guide notes. An outline of content changes can be found in the [2023 Census: Final content report](#).
- [Census glossary](#) provides descriptions of the terms we use when we talk about the census.
- Information on our approach for adding admin data records to the 2023 Census dataset is available in:
 - [Methodology for using admin data to count people in the 2023 Census](#)
 - [Linking 2023 Census responses to the Integrated Data Infrastructure](#)
 - [Predicting usual residence address from admin data in the 2023 Census](#)
- Information on our approach for use of alternative data sources to fill gaps in census variables is available in:
 - [Editing, data sources, and imputation in the 2023 Census](#)
 - [Data sources and imputation for Māori descent in the 2023 Census](#)
 - [Methodologies for filling gaps in gender and sex at birth concepts for the 2023 Census](#)
 - [Data sources and methodology for iwi affiliation in the 2023 Census](#)
 - [Data sources and imputation for cigarette smoking behaviour in the 2023 Census](#)
- Information on our approach for use of alternative data sources to fill gaps in census variables will also be available in the upcoming publications (note, titles and release dates are prospective and subject to change):
 - *Producing family and household data by ethnicity and Māori descent in the 2023 Census* (November 2024)
 - *Families and households in the 2023 Census: Data sources, family coding, and data quality* (November 2024)

[Data quality assurance in the 2023 Census](#) outlines the quality rating scale and quality assurance framework used to assess the quality of data from the 2023 Census and determine whether it is fit for purpose and suitable for release.

[Data quality ratings for 2023 Census variables](#) shows the priority level and quality rating of each census concept and has information on the relative contribution of different data sources for individual concepts.

[2023 Census information by concepts](#) provide information about our census data, including non-response rates, data sources, comparability over time, data quality, and recommendations for use. The pages have information about our census data, including non-response rates, data sources, comparability over time, data quality, and recommendations for use.

Access further face-to-face and online support and training from our [customer and community engagement](#) teams to understand how to use census data.

You can also contact our Information Centre for further assistance:

Stats NZ Information Centre: info@stats.govt.nz

Phone toll-free: 0508 525 525

Phone international: +64 4 931 4600

www.stats.govt.nz