
Number of children born

Variable specification

2018 Census

Log of late changes to variable specifications: **Variable name changed to reflect the 2018 Census question. The word 'alive' has been dropped from the question on number of children born (alive).**

A routing question is not required now that the 3rd sex option has been removed for 2018, so the question wording has reverted to the 2013 version.

Purpose

Census variable specifications are living documents created during the development phase of census, up to and including the 2017 Census Test. They serve as a resource for general reference, and inform the work of teams working on the census, including field operations, respondent interaction, questionnaire design, classifications and standards, processing, data evaluation, and outputs.

These specifications document important information about each census variable in one place, including metadata such as definitions and classifications, emerging information needs, data quality problems, and details of how we ensure that good quality data is produced. Information is added to these variable specifications as it becomes available. Feedback and analysis of testing may result in changes to these documents.

Decisions on inclusion of this topic/variable

	Inclusion (note important details)	Date	Who
Census Test July 2016	Yes	11/04/16	Denise McGregor
Census Test 2017	Yes	06/10/16	Denise McGregor
2018 Census	Yes – with minor change (alive removed)	30/06/17	Denise McGregor

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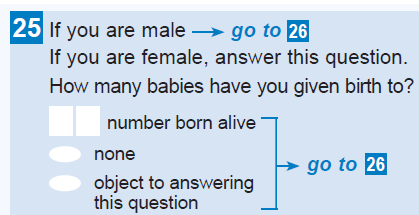
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1.0 Background information

1.1 Change indicator

Minor – change to remove the term ‘born alive’ and replace with ‘born’.

The decision to remove the third sex option from the 2018 Census has meant a change in the routing instructions from the 2017 Test. The question wording has reverted to the 2013 version of the question (see below).



25 If you are male → go to 26
If you are female, answer this question.
How many babies have you given birth to?

number born alive
 none
 object to answering this question

→ go to 26

1.2 Census Customer Focus contact people

Primary – [redacted – s9(2)(a)]

Secondary – [redacted – s9(2)(a)]

1.3 Other key contact people

Subject Matter – [redacted – s9(2)(a)] and [redacted – s9(2)(a)], Population Statistics

Classifications and standards – [redacted – s9(2)(a)] (TBC)

Respondent interaction – [redacted – s9(2)(a)]

Questionnaire Methodology and Development – [redacted – s9(2)(a)]

2.0 Collection and Classification

2.1 Definition

Current Definition from the Statistical Standard: The number of children ever born alive to each female resident in New Zealand at the time of the data collection aged 15 years or over. Foetal deaths and stillborn children are excluded. Stepchildren, adopted children, foster children and wards of State should only be included by their biological mother and not by the mother they are living with or raised by. This is the definition from the statistical standard.

The current definition may need to be changed by Classifications and Standards retrospectively, to reflect the decision by the Census forms working group to remove the word ‘alive’ from the census topic and question. Foetal deaths and stillborn children can now be included by respondents. However, the intent of the question is the same, and respondents are not specifically asked to include stillbirths or foetal deaths.

2.2 Where this data comes from

Question 29 on the individual form (2017 Test). Minor change from 2013 Census to accommodate the third sex option in 2017. For the 2017 Census Test, there is a routing question (Q28) prior to Question 29 for males only to skip the question (not third option respondents).

For the 2018 Census, the routing instructions will revert to the 2013 version of the question, as the third sex category has been removed.

Census 2018 Question

27 If you are male → go to **28**
If you are female, answer this question.
How many babies have you given birth to?
 number born
 none
or object to answering

Census Test 2017 Question

28 If:
you are male → go to **30**
otherwise → go to **29**

29 How many babies have you given birth to?
 number born alive
 none
 object to answering

2.3 Derivations

Not applicable.

2.4 Classifications

The following classification will be used in the 2018 Census:

FERTILITY V2.0 – Fertility - Standard Classification

(Previous censuses: 2013 – same; 2006 – same)

- 00 No Children
- 01 One Child
- 02 Two Children
- 03 Three Children
- 04 Four Children
- 05 Five Children
- 06 Six Children
- 07 Seven Children
- 08 Eight Children

09 Nine Children
10 Ten or More Children
44 Don't Know
55 Object to Answering
77 Response Unidentifiable
88 Response Outside Scope
99 Not Stated

Concordance: not applicable

2.5 Coding

Number of children born (IF27) – FERTILITY V2.0

If textbox >9 and not unidentifiable then = 10

textbox1 = 00

textbox2 = 55

If textbox = 0 and textbox1 responded to then = 00

If textbox is not 0 and textbox1 responded to then = 77

If textbox and textbox2 responded to then = textbox

If textbox1 and textbox2 responded to then = 00

If all responded to then priority for coding is textbox, textbox1, textbox2

If no response then = 99

3.0 Output and types of output

3.1 Subject population

Female census usually resident population aged 15 years and over.

In previous censuses, some males have answered this question for a range of reasons, but the majority are males who simply answered the question because they chose to (and comparing the number born with their female partner's number suggests that is most likely). Sex-imputation and sex recognition were another factor (eg imputed as male). Online completion will minimise the number of males answering this question as they will be routed from the question. A small number of respondents may have changed their sex.

3.2 Output categories and types of output

The output categories were usually as followed:

No Children
One Child
Two Children
Three Children
Four Children
Five Children
Six or More Children*

Object to Answering – this is a valid category when calculating 'total stated' or any percentages.

Not elsewhere included - this category is a residual output comprised of the following categories: 'response unidentifiable', 'response outside scope', and 'not stated'.

Code 44 "Don't know" is not used by census.

Depending on the population that data is being output about, sometimes there are outputs that combine categories and use "four or more"

Census totals by topic output to 'ten or more children'

4.0 Data use and emerging information needs

4.1 Data use by Statistics New Zealand

Statistics NZ uses data collected on number of children born to supplement fertility studies based on birth registration data.

This data is also used indirectly to assist in formulating fertility assumptions for the population projections produced by Statistics NZ and also provides information supporting the final choice of assumptions.

Information on number of children born alive is used in the population sections of analytical reports to comment on:

- changes in the population age structure (i.e. ageing population)
- the changing dynamics of family (e.g. family size)
- childlessness and fertility rates – affects labour market predictions, health resourcing, social well-being and aged care planning
- differences in fertility between ethnic groups, age groups and other key variables
- women's roles over time

4.2 Data use outside of Statistics New Zealand

'Number of children born alive' data contributes to the quality of population projections and our understanding of present and future society; aiding research and policy.

'Number of children born alive' is used to:

- help build accurate models of population structure and change
- study family size and fertility rates – it is the only measure in New Zealand for childlessness
- provide valuable insight into different population profiles when combined with other variables
- track migration-driven ethnic diversification
- monitor the population age structure
- analyse differences in fertility between ethnic groups, age groups, and other key variables

- help indicate women's roles over time

4.3 Emerging trends and information needs

Fertility behaviour is subject to rapid changes with large scale international migration. There are differences in fertility rates between ethnic groups. This is becoming more relevant with New Zealand's growing cultural diversity.

There is an information gap in the number of children fathered. This was acknowledged and discussed for the 2013 Census, but not included in the final content.

4.4 2018 Census content consultation and engagement

Generally, the variable has been considered to be cyclical (included every second census) – it was included in 1981, 1996, 2006, and 2013. It was included again in the 2013 Census due to it being a minimal content change census. The 2018 Census preliminary view stated more information was required for inclusion of the variable. It was part of the previous two censuses and early analysis suggested the trend was stable.

There were not many submissions (8) or online comments (5) for this variable. Most submission strongly supported including the variable for the 2018 Census. Submissions were made by Population Statistics, Population Association of NZ, NZDep, Southern DHB, Ministry of Health, University of Waikato and the Sociological Association of Aotearoa. The reasons were:

- rapid changes in fertility behaviour with large scale international migration
- this variable being the only robust basis for examining childlessness
- it is also the only source of information on all live births to women
- New Zealand's changing ethnic composition
- Resourcing an ageing population scenario
- a raised importance of social status

Conclusion

This variable was identified in the preliminary view as needing more evidence required to recommend inclusion. After the engagement and consultation we assessed it using the content determination framework. This variable scored highly due to the numerous needs identified from key stakeholders, the fact that census is the only source of childlessness and the quality of data this variable produces. The sensitivity of this question was noted however this was not thought to be a major issue therefore the variable was included in Census Test 2017 with an addition of a routing question (see 2.2). This routing question is not required for the 2018 Census as the 3rd sex category is not included.

Removal of the word 'alive' from the number of children born question was actioned after the 2017 Test, for several reasons:

- a long-standing concern by parents of stillborn children – Sands NZ, a voluntary support group for families who have experienced the death of a baby, ran a petition after the 2013 Census against the inclusion of the term live births;
- discussions with the Australian Bureau of Statistics, who removed the term in their 2016 Census;

- approval by the General Manager, Census to change the wording;
- confirmation from Population Statistics that its removal would not impact on the time series as the number of stillbirths in New Zealand are very small;
- no specific instructions need to be given to respondents as to whether to include or exclude stillbirths.

Paternity

There was a suggestion from Population Statistics to ask males this question as well as there is growing interest in paternity rates and it would give new and important demographic information on this group. They also explained that this information would be used to investigate the relationship between socioeconomic status and paternity for males.

The above suggestion re male responses was assessed using the content determination framework and it was concluded that there wasn't enough interest shown in this variable and it would not add a great deal of value to information available about New Zealand's society and economy. It was also concluded that it is likely to have many data quality issues and is not suitable for a self-administered survey therefore was not recommended to progress to testing.

Documentation on content consultation and engagement:

[2018 Census content: Summary of feedback from engagement and consultation](#)

[2018 Census content: Summary of submissions](#)

4.5 Alternative data sources

Name of data source	Organisation	Survey or administrative data	Sample size	Frequency	Limitations
Vital Statistics (Birth Registration)	Department of Internal Affairs	Administrative data	–	Ongoing	Only provides information on women giving birth in that year (i.e. no information on childlessness, overseas births to New Zealand resident women, correct parity information); cannot be cross classified by social or economic variables

5.0 Data quality

5.1 Quality priority level

Priority Level 3

Priority 3 variables do not directly fit in with the primary purpose of a population census, but are important to certain groups. These variables have third priority in terms of effort and

resources. However, there are minimum quality standards (eg within the variable specifications) that have to be met in order to make the output data suitable for use.

Priority levels document: [Update to the 'three quality priority levels' in the 2018 Census](#)

5.2 Assessment of overall data quality for 2013

The data was assessed as being high: fit for use – with minor data quality issues only.

[2013 Census variable quality rating scale](#) gives more detail.

5.3 Non-response rate in 2013

In 2013 the non-response rate for this variable was 7.5%, of which 4.5% were substitutes and 3.0% were non-response on individual forms.

The non-response rate for this question was similar to previous censuses. In 2006 the non-response rate was 6.7%, of which 3.3% were substitutes and 3.4% were non-response on individual forms. However, the increase in non-response is due to more substitutes in 2013 (4.5%) than in 2006 (3.3%).

In 2013 there were fewer women who objected to answering and slightly more women provided an answer to the 'number of children' (including zero) they had given birth to, therefore it's possible that more useful data was provided.

5.4 Imputation

Not applicable.

5.5 Data quality issues

Overall, the quality of the number of child born variable is high. Improvements in processing technology since the 1996 Census (e.g. improvements to numeric recognition) have led to higher data quality. There has been significant decrease in unidentifiable responses between the 2006 and 2013 Censuses, which may be due to an increase in internet submissions.

Data quality may however be affected if a third category for the sex variable is introduced. (not in 2018).

Recognition problems with scanned paper forms should be less problematic in 2018 with more internet forms.

For further information, refer to the [2013 Information by Variable](#) or the 2013 Warrant of Fitness ([Number of children born alive WOF Warrant of Fitness 2013](#)).

5.6 Recommendations and suggestions for improving data quality

Recommendation/suggestion	Has this been implemented? (yes/no)	Comments
Collection phase		

Questionnaire design		
Sands NZ ran a petition after the 2013 Census to change the question to include those who died before birth. The chairperson recommended making it a two part question: the number of children born, and the number of born alive.	No – but the word ‘alive’ has been removed from the question wording	<p>Pro: information on maternal health</p> <p>Pro: valuable source for (known) baby mortality rates (prior to 20 weeks gestation).</p> <p>Con: having it is a two part question could cause confusion and respondent errors.</p> <p>Con: sensitivity issues could lead to higher rates of objecting to answer.</p> <p>Con: could negatively affect comparability of data</p>
If LGBTIQ or third sex option is included, possibility of rewording to include those who don't identify as female (but have given birth) – i.e. non-males. Will need to do research about whether those who answer as the third sex response option (TBC) should be routed to the fertility question.	Yes, routing includes 3 rd sex option in Census Test 2017 but not for 2018	Data comparability may be affected, but as the numbers would be very small, it is not likely to be an issue.
Classification and codefile		
Processing		
Create an upper limit for responses for over 25 children born alive to a female. These answers should be coded as outside scope.		This was done as a global edit for the 2013 Census. On line, respondents can only enter a value of 0-20.
- Edits		
Imputation		

Derivations		
Product development and output		
Be aware that time series will be impacted if a third sex category is added.	Not collected in 2018	

5.7 Differences between desktop, mobile, and paper forms

Features of desktop and mobile forms that lead respondents to questions relevant to them

Respondents can only answer this question if they have ticked 'female' in the sex question (IF3).

The question will not appear online if respondents have ticked male.

Children under 15 will be directed away from the question online, but can complete the question on the paper form.

It is not possible to tick 'object to answering this question' and give a response online, but multiple responses are possible on paper.

Differences in question wording and layout:

The online and paper versions of the question are the same. The online form follows the intention of the paper form in that the number of children born question is treated as an 'or' question. The respondent can go back to the sex question at this stage if they believe it is wrong. Object to answer can be selected with any other option or on its own. If a number born is entered none cannot be selected at the same time and vice versa.

Differences in responding

Responses are limited to between 0-20 children online, but it is possible to put any number of children on paper.

Additional help information on desktop and mobile forms

No online help is included in the 2017 Census Test.

Built-in editing on online forms for desktop and/or mobile devices.

N/A

5.8 Edits in the processing system

2018 Edits

see [Final Edit Recommendations 2018](#)

2018_multiresptosingleresp_nbrchnborn_225	Reduce multiple to single response – prioritise number of children over none or object
2018_outofrange_nbrchnborn_224	Recommended more than 25 to out of scope / unidentifiable be coded to 77
2018_leslikely_nbrchnborn_new1	ibirthsn > 6 AND ibirthsn <> (77, 88, 99) to be checked

2017 Census Test – Proposed Edits

2017_leslikely_childrenborn_new1	Warning edit - capturing less likely responses
2017_multiresptosingleresp_nbrchnborn_225	Capture edit - catching and resolving multiple response to single response question
2017_outofrange_birthsnbr_224	Capture edit - catching and resolving out of range responses

2013 Edits

Edit Number	Description
1 (from 2013)	Males cannot give birth to children. Check respondent's intention. Amend if necessary, else leave. This is a warning edit.
2 (from 2013)	Out of range or unidentifiable numeric on births Verify response and amend if necessary, otherwise put to 77 (response unidentifiable)
3 (from 2013)	Number of births inconsistency Check respondent's intention. Highlight true response.
4 (from 2013)	Edit for 7 or more children. Check that record scanned correctly. This warning edit was done as a check in the IFP (Intelligent Forms Processing) and came to the attention of operators when the condition existed.
Proposed edits not included in the 2013 Processing System	
5 (from 2013)	During 2006 evaluation a global edit was run to convert number of children born alive responses of more than 25 children to the residual category of 'response outside scope'. Very few records (around 120) were affected by this global edit. This was actioned on the advice of the subject matter experts (Population Statistics Unit). It is recommended that this be investigated for the 2011 Census to see the best place to place this edit - ideally need to look at individual responses to determine respondents' true intentions (where possible).
6 (from 2013)	Some males answer this question. It is also important to note that in some cases the respondent may have marked the wrong sex rather than it being a case of a male answering this question. This would be worthwhile

	investigating to see if a warning edit could be put in place to detect incorrect responses to the sex question (or even incorrect sex imputation). Pop Stats suggest that the fertility question should be part of the sex-imputation process.
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5.9 Evaluation checks – to be updated for 2018

Validity check

- frequency distribution of number of children born alive in 2018
- average number of children born by age should be close to cohort fertility rates
- females under 15 with children born (ensure these have been edited out of data)
- females under 20 with 4 or more children born
- females 20 years and over with 7 or more children born
- females with 10 or more children born
- males with children born - monitor
- number of children born and usual residence indicator (should not be answered by non-residents, but should be less of an issue with more online responses).
- object to answering by number of children
- analysis of people who both object and answer the question

Compare the 2017/2018 Census data with the 2013 Census

- frequency distribution
- average number of children per woman and average number of children per mother by single year of age
- average number of children born by regional council area
- average number of children born by territorial authority
- average number of children born by urban area
- number of children by age of mother comparisons
- number of children by ethnicity
- object to answering - 2006 and 2013 comparison (also by ethnic group, level 1)
- not stated - 2006 and 2013 comparison (also by ethnic group, level 1)

Checks are also needed on the accuracy of the numeric recognition. Information about the quality of the recognition could be used as a tool in monitoring the quality of this data.

Appendices

2018 Census content process documentation: [2018 Census content - core documentation](#)

2013 Variable Specification: [here](#)

C. 2013 Information by Variable: [here](#)

Information by variable is a brief document available on the Statistics New Zealand website which provides background information such as the definition and classification, along with information about data quality, and data quality issues to be aware of. It is the first 'port of call' for finding out about data quality issues.

D. 2013 Warrant of Fitness: [here](#)

The Warrant of Fitness (WOF) is a report on the final data quality that was achieved for a variable. It is an internal document that is much more detailed than Information by Variable. The warrant of fitness is produced at the end of data evaluation. It documents whether the data looked as expected, data quality issues and corrective actions taken, and makes recommendations for the following census. Although it is the end document for reporting on data quality, it also serves as a reference document for developing the next census.

E. Guide to determining the change indicator rating

Minor – minor changes that are not expected to have much effect on the data produced. Examples of this are minor changes to questionnaire design and/or guide notes/help information for respondents, minor classification changes that do not have much effect on what is included in each category, a small number of new codefile entries, minor changes to the derivation.

Moderate – changes that are expected to have some effect on the data produced. This could include changes to question wording, layout, or response options that are expected to change people's responses; changes in the guide note/help instructions that affect certain groups of respondents; new classification categories; changes to the codefile entries for some categories; new edits.

Major – major changes that are expected to affect the data produced eg a change in the type of information collected which means changes to the question wording; substantial changes to response options; major changes to guide note/help instructions; a new classification with multiple changes to categories and what they include; a new codefile; significant changes to the derivation.

E. Link to 2017 Test Analysis Report [here](#)