Scotland's Census 2022

Methods and Outputs Update

June 2023 ▶

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This presentation will cover

- Communicating our updated methods
- Quality assurance of LA census outputs
- Census outputs plans and consultation results

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Communicating our updated methods

Towards First Outputs

First outputs are planned for publication in Autumn 2023 and will include:

- Population by 5-year age group and sex at Local Authority and Scotland levels

- Population density

- Household numbers

Towards First Outputs

01	02	03	04	05
Collection	Coding	Cleaning	Completing	Cross-validation

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Confidence in Statistics

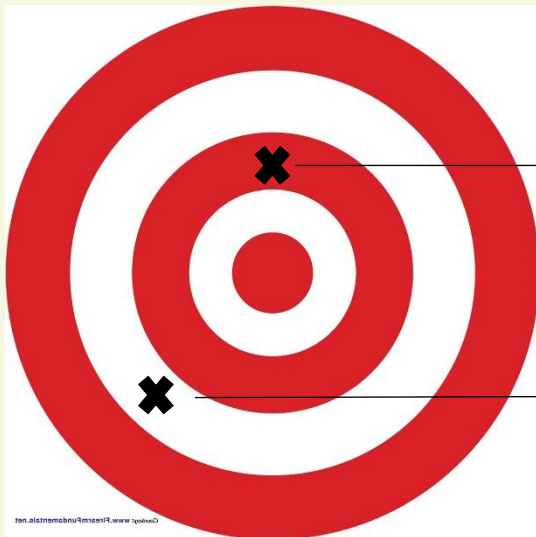NRS will demonstrate confidence in first outputs from the census in three ways:

- National Statistics accreditation
- Sound statistical methods
- Coherence with other published statistics and data

Change in Estimation Approach

Objective

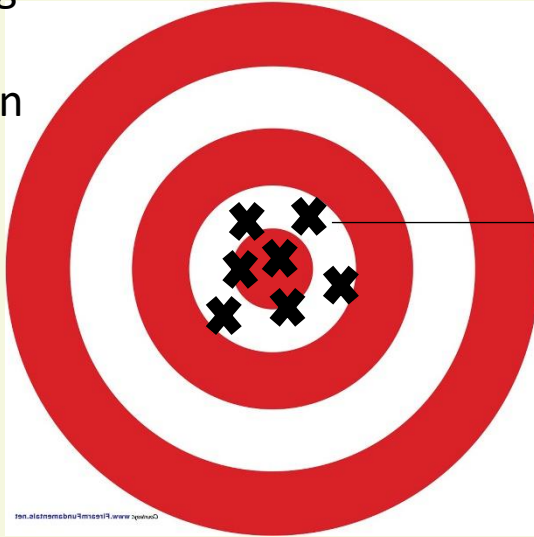Objective is to have to have estimates for the whole population, counted once and in the right place

We set a target of 94% returns but as with 2001 and 2011 had statistical methods for getting to 100%

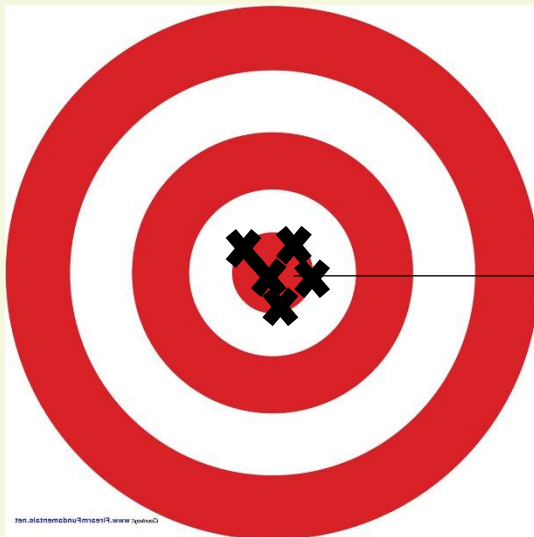We actually achieved slightly less than this

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Change in Estimation Approach

Estimating
Total
Population

Our statistical methods use a Census Coverage Survey to produce final estimates

We can still produce estimates based on what we collected but there is a greater risk that this estimate (one of these marks) is further away from the actual population
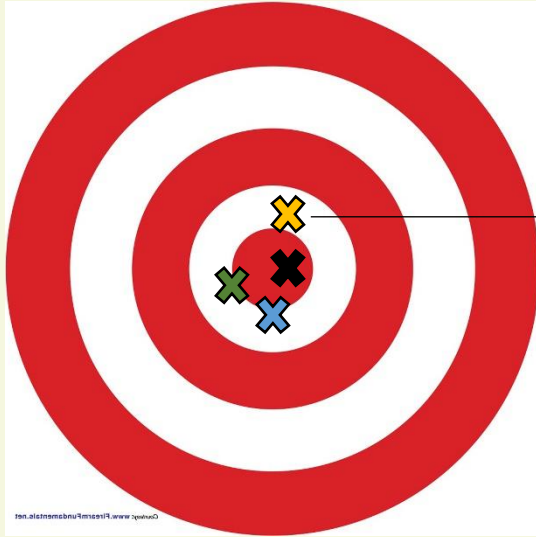
We are going one step further than planned to give us greater confidence in the estimates (one of the marks shown)

By supplementing the Census Coverage Survey with Administrative Data we can be more confident about the estimates

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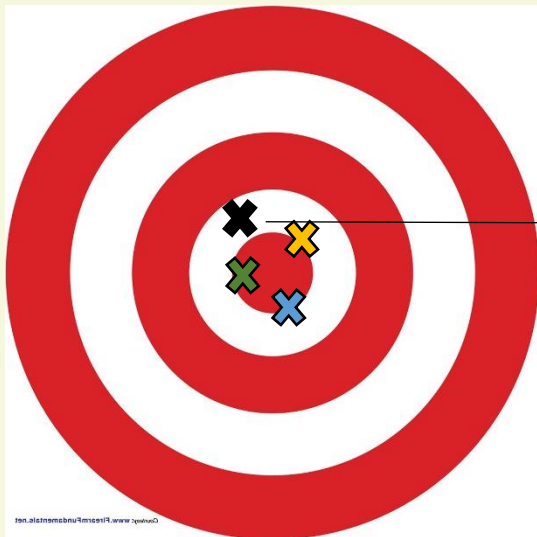Shaping our future
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Change in Estimation Approach

Validating
Estimates

We always planned to do a validation/quality assurance of the estimates

Comparing our estimates to other data and statistics we'll get a good sense of whether we need to do further investigation or modelling

If we did find our estimates were out of line with other data we have plans in place to change our approach

We do know that there isn't an alternative source that is a perfect estimate of the population – that's why we do a census

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Method Development – International Steering Group (ISG)

The ISG was established by the Registrar General for Scotland and is chaired by Professor James Brown, University of Technology Sydney

- International experts have helped shape methodology changes
- Notes of meetings are published on NRS website
- Methodology update published in June

Decisions on Changes to Approach

1. Use of a Logistic Regression Model
2. Supplementing CCS with Administrative Data
3. Selection of Administrative Data to Use
4. Use of Administrative Data for Communal Establishments
5. Alternative Household Estimate for Bias Adjustment and QA

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Keeping Stakeholders Informed

Three phases:

a. Ahead of first outputs
b. At first outputs
c. After first outputs

First Outputs Engagement

Ahead	At	After
• Output consultation findings • Methodology update • Webinars, meetings and direct comms • Local Authority QA	• Quality information • Statistical publication	• Further quality information • Direct user engagement where needed • Potential additional webinars

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Quality Assurance

Quality Assurance Approach

To have confidence in our statistics we undertake:

Quality Assurance at every step of processing to ensure we haven't introduced error

Validation of final census estimates against other data and statistics

Quality Assurance Approach

Planned quality assurance and validation activity will give us confidence in estimates produced using our updated methods:

Quality Assurance:

Statistical quality assurance | Scotland's Census (scotlandscensus.gov.uk)

Validation:

Statistical Quality Assurance - Validation of Population Estimates methodology paper | Scotland's Census (scotlandscensus.gov.uk)

Additional quality assurance

- Additional QA steps have been taken to have confidence in the administrative data we area using.

- Manual review of automated links

- Analysed administrative data links at an aggregate level to check for unusual patterns e.g. by geographic area

Validation of population estimates

- Coherence with other statistics and data helps us consider where we may need to revise estimation

- Validating across a range of sources as there is no perfect comparator source

- Sources used include:
  - Mid-Year Population Estimates
  - 2011 Census
  - Scottish School Census
  - National Health Service Central Register
  - Council Tax
  - Alternative data Based Population Estimates

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Local authority QA

- We will also share census estimates with local authority representatives for QA purposes.

- Under Code of Practice we can share pre-publication data for QA.

- Local intelligence will help guide our QA

- We will consider any evidence provided on this and decide whether to take further action

Confidence in Statistics

NRS will demonstrate confidence in first outputs from the census in three ways:

- National Statistics accreditation
- Sound statistical methods
- Coherence with other published statistics and data

Outputs plans and consultation results

Summary

The consultation exercise was successful

- Good number and spread of stakeholders responding

- Healthy response on all aspects – products, sequencing, new questions, etc.

Positive user response to our outputs plans

- Feedback was generally positive and constructive

- Some technical changes required to certain outputs but no major changes to our overall approach

Stakeholder engagement will continue throughout the year

- We published a [report on the consultation findings](#)

- Findings will feed into updated [outputs plans](#)

- We will continue targeted engagement with stakeholders and data users

Why we ran the outputs consultation

The outputs consultation allowed us to gather users' views on our plans for publishing census outputs. This helps us ensure that the outputs we publish will meet users' needs. By doing this we will maximise the use and value of the census.

The consultation covered several aspects of our plans for publishing census data. We asked users to give us their views on:

❑ the order and sequencing of topics published

❑ the tools we use to publish data

❑ the geographical levels that data are published at

❑ how changes to census questions impact users' planned work/research

❑ what users need from the new census questions

What we published

As part of the consultation we published details on our plans for publish census outputs:

- Content on the website detailing our plans and key decisions made

- Spreadsheets containing information on:
  - The tables we plan to publish
  - The classifications we plan to use for derived variables
  - Information on what population bases and geographies the data will be available for

Alongside the consultation documents we made a survey available to users. This asked users about our plans and users could respond via:

- survey monkey questionnaire or
- completing a word doc and sending to an email address set up for the consultation

Responses to the consultation

- We received over 140 survey responses to the outputs consultation

- Responses received from users in central and local government, academic institutions, charity organisations and individual responses:

Sector	Number	% of total
No sector, I am responding in a personal capacity	38	28%
Central government	6	4%
Local government	23	17%
Other public body, for example health, transport, emergency services	16	12%
Academic or research	9	7%
Religion or faith	1	1%
Charity and voluntary	19	14%
Commercial	8	6%
Journalist or media	1	1%
Other	13	10%

What the responses tell us - User quotes

Outputs Consultation - Reminded by our users how important census statistics are:

"Given the pandemic, and the pressure on health and social care services, we really, really need a refresh of reliable data so we can understand our communities and what need is out there. We are dealing with some of the most vulnerable people."

"UK Armed Forces veterans first - because the last available demographic survey is very limited in scope and over 8 years old, and the organisation is seeking to expand service offering into new geographies and robust data on needs will transform this decision making process ."

"Our preference would be for 'Ethnic group' data to be one of the first to be published. The census is the only comprehensive source for this information and the results are needed for research and analysis ."

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What the responses tell us – Our plans

We asked users for feedback where there was a notable change to the approach used in 2011. This included:

Reducing the number of tables published due to the introduction of the Flexible Table Builder
71% of respondents had no concerns and were happy with this approach.

Our approach to publishing univariate topic tables
91% of respondents had no concerns with no longer using the KS and QS codes

Our approach to publishing multivariate topic tables
85% of respondents had no concerns with no longer using the DC and LC codes

Not producing the Detailed Characteristics (DC) and Local Characteristics (LC) postcode sector geographies previously used in the 2011 census
81% of users had no concerns with us dropping the DC and LC postcode sector geographies

Changes we will make

- We aim to publish additional pre-defined tables where we identified a strong user need to do so. We will review requests for additional tables and where appropriate and feasible will add these to our plans for pre-defined tables.

- We aim to publish two versions of some multivariate tables where we identified a user need and it is in line with our statistical disclosure control policy.

- We will investigate further if it is possible to publish origin destination data at more disaggregated levels.

- We will add an additional analytical report to our list covering the health topic. We will continue to work with stakeholders to determine the content of each report and any additional topics which should be covered through these reports.

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Census Outputs Release Schedule

Population & Household estimates	**Autumn 2023**	Population by age and sex at Scotland and Local Authority level (rounded)
	Winter 2023-24	Updated mid-2022 population estimates, followed by reconciliation report and rebased figures for the last decade
	Spring 2024	Population by age and sex at all geographies down to output area (unrounded) Output areas are made up of approximately 50 households
	Summer 2024	Updated mid-2022 population estimates for small areas

Topic data	**Summer 2024**	Phased release of univariate census outputs - tables including one census topic variable. Published at all geographies down to output area.
		    Demography and migration
		    Ethnic group, national identity, language & religion
		    Sexual orientation and trans status or history
		    Health, disability and unpaid care
		    Housing
		    Labour market and travel to work
		    Education
		    Veterans

	Winter 2024/25	Phased release of multivariate census outputs - combining multiple topic variables in the same table. Published at all geographies down to output area
Analysis products	**2025**	Analytical reports - further analysis of key census topics Microdata - samples of anonymised census records. Made available to accredited researchers in secure settings Origin-destination data - statistics describing the movement of people, including migration and travel to work or study Workplace and daytime population data - census data published using alternative population bases

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Next steps

- We recently published:
  - an [update on our statistical methods](#)
  - a [report on the consultation results](#)
  - an [outputs schedule](#) which will be updated regularly

- We will use the consultation feedback to:
  - help plan census releases
  - finalise the derived variables
  - finalise table layouts and design outputs products

- We will continue to engage with data users to ensure we are meeting their needs – we have set up a survey for feedback on today's session

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Contact ▶

More information:

https://www.scotlandscensus.gov.uk/

Contact us using the online form:

https://www.scotlandscensus.gov.uk/contact-us/

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