
What is census microdata?

Making the most of Census microdata:
An introductory workshop

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UK Data Service

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Census Data

- Census Act 1800. Enabled the first census on 1801.
- Until 1831 the census is a head count of everyone in the country on a given day.
- Nowadays it is defined as the “count of all people and households”, incorporating gradually more information of the population.

UK Population change



Source: Census - Office for National Statistics, Northern Ireland Statistics and Research Agency, National Records of Scotland

The United Kingdom



National
Records of
Scotland

Scotland

Northern
Ireland

England

Wales



Northern Ireland
Statistics &
Research
Agency



Office for
National Statistics



UK Data Service

A brief description of census

- What is the census?
 - Main function to count the population at one or more locations
 - Obtain some characteristics about the population
 - Outputs for small geographies
- What is it for?
 - Informs public spending
 - Used as a basis for other statistical systems
 - Informs the public policy making process
 - Used by Central and Local Governments
 - Used by NGOs
 - Used for research purposes (to inform public policy too)



What questions were asked?

Demographics

Age
Sex
Country of Birth
Short-term residence
Ethnicity
Religion
Passports
Language
National identity
Household relationships
Marital status
Second residence
Migration

Household

Tenure
Accommodation type
Cars
Central heating
No. of bedrooms

Socio-economic

Health
Unpaid care
Qualifications
Economic activity
Occupation
Industry
Travel to work
FT / PT

Census Outputs



1. Supported by the UK Data Service

- **Microdata**
 - Anonymised samples of census records
 - Detail limited to protect confidentiality
- Aggregated data
 - Counts of combinations of characteristics for areas
- Flow data
 - Counts of migrants from origin to destination
 - Or, between first and second address
 - Or home and place of work
- Boundary data
 - Geographical Information System (GIS) formats.
 - Shape files to enable these to be mapped

2. Supported by CALLS

- Longitudinal microdata for each country

The screenshot shows the UK Data Service Census Support website. The header includes 'UK Data Service Census Support' and navigation links 'About Census Support' and 'Get census data'. A sidebar on the left lists data types: 'Aggregate data', 'Flow data', 'Microdata', 'Boundary data', 'Related data', and 'Explore online'. The main content area is titled 'Get census data' and features a dark blue banner with the text 'Take a look at our range of census data' and a bar chart with pink and green bars. Below the banner, it states 'We hold a range of different types of census data, such as:' followed by a list of links: 'aggregate data', 'flow data', 'microdata', and 'boundary data'.

Inside census microdata

Data Editor (Edit) - [recodev12.dta]													
File Edit View Data Tools													
agehrp[1] 4													
	ageh	agehrp	aggdtpew11g	ahchuk11	carer	carsnoc	cenheat	clients01	clients02	clients03	clients04	clients05	clier
1	5-9	30-34	Not a...	Two a...	No	0	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
2	75-79	75-79	Not a...	1 non...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
3	25-29	25-29	2 to ...	One a...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
4	45-49	45-49	Not a...	One a...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
5	75-79	75-79	Not a...	One a...	No	0	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
6	10-15	45-49	Not a...	Two a...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
7	16-18	45-49	Less ...	Two a...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
8	19-24	25-29	5 to ...	Two n...	No	0	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
9	40-44	40-44	At home	One a...	No	0	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
10	70-74	70-74	Not a...	One a...	No	1	No ce...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
11	45-49	40-44	At home	Two n...	No	2	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
12	5-9	25-29	Not a...	One a...	No	0	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
13	5-9	25-29	Not a...	Two a...	No	0	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
14	16-18	45-49	Not a...	Three...	No	0	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
15	25-29	25-29	Less ...	Two a...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
16	10-15	35-39	Not a...	Two a...	No	2	2 or ...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
17	45-49	45-49	5 to ...	Three...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
18	16-18	50-54	Not a...	Three...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
19	19-24	50-54	Not a...	Three...	No	2	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
20	19-24	19-24	5 to ...	One a...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
21	75-79	45-49	Not a...	Three...	No	2	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
22	45-49	45-49	2 to ...	Three...	No	0	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
23	45-49	45-49	Less ...	Three...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
24	19-24	45-49	10 to...	Three...	No	3	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
25	40-44	40-44	Not a...	Two a...	Yes, ...	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
26	45-49	45-49	Less ...	Three...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
27	60-64	65-69	Not a...	1 non...	No	1	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not
28	55-59	35-39	Not a...	Three...	No	2	Gas c...	Not a...	Not a...	Not a...	Not a...	Not a...	Not

Service

Types of 2011 census microdata

- Open files
 - Teaching files – available from census offices and UKDS (1% regional taster file)
- Safeguarded
 - regional files (5%)
 - grouped local authorities files (5%)
- Controlled access
 - Individual files (10%) England and Wales
 - Household files (10%) England and Wales

What is included in the microdata files (1991-2011)

- Demographic characteristics
- Migration
- Education
- Employment
- Health indicators
- Household condition and amenities
- Language
- Social class



Census microdata topic guide (1991-2011)



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Topic	1991				2001			2011								
2	Demographic	HHD GB	HHD NI	Ind GB	Ind NI	I-SAR	H-SAR (lic)	SAM	EW Safeg Reg	EW Safeg LA	Sc Safeg Reg	Sc Safeg LA	NI Safeg Reg	NI Safeg LA	EW Teach file	Sc Teach file	NI Teach file
3	Sex	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	Exact pension age	.	.	.	.	.	.	.	Yes	Yes	Yes	Yes	Yes	Yes	.	.	.
5	Person of pensionable age	.	.	.	.	.	.	.	Yes	Yes	Yes	Yes	Yes	Yes	.	.	.
7	Marital Status	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	Living arrangements	.	.	.	.	.	.	.	Yes	Yes	Yes	Yes	Yes	Yes	.	.	.
9	Cohabiting same-sex couple	.	.	.	.	.	.	.	Yes	.	.	.	Yes	.	.	.	.
10	Household head/reference person	Yes	Yes	Yes	.	.	Yes	Yes	.	.	.	.	.	.	.	.	.
11	Family head/reference person	Yes	Yes	Yes	.	.	Yes	.	.	.	.	.	.	.	.	.	.
12	Relationship to HH head/reference person	Yes	Yes	Yes	Yes	Yes	Yes	Yes	.	Yes	Yes	.	Yes	Yes	.	.	.
13	Residential status	Yes	Yes	Yes	Yes	.	.	.	.	.	Yes	.	.	.	Yes	Yes	.
14	Student residential status	.	.	.	.	Yes	.	.	.	.	.	.	.	.	.	.	.
15	Age of household head/reference person	Yes	Yes	.	.	.	.	.	Yes	Yes	Yes	Yes	Yes	Yes	.	.	.
16	Age of family head/reference person	Yes	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	Sex of household head/reference person	Yes	Yes	.	Yes	.	.	.	.	.	.	.	.	.	.	.	.
17	Sex of family	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

<https://census.ukdataservice.ac.uk/use-data/guides/microdata>

What can be done? (1)

- Can create your own tables.
- Combination of characteristics (variables) not available on ready-made released tables.
- Can define subpopulation for underrepresented groups
 - Due to the large sample size
- Can create regional and local authorities aggregated variables
 - Enhancing area level estimates
 - Relatively large samples for small areas
- Can complement survey data
 - With area level characteristics added

What can be done? (2)

- Allows to undertake several type of statistical analysis
- Allows to visualise and analyse change and trends over the years
 - Putting area level characteristics into maps
- **Trade-off**
 - Sample data, which means that results are estimates
 - Geographical detail is limited in safeguarded data

What has been done?: Research examples

Housing disadvantage



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Sue Lukes ✉, Nigel de Noronha & Nissa Finney
Published online: 18 Jul 2018



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Frances Darlington-Pollock ✉, Nik Lomax, Paul Norman

First published: 07 November 2018 | <https://doi.org/10.1111/geoj.12286>



Internal migration

Self-employment



SMALL BUSINESS ECONOMICS
An Entrepreneurship Journal

[Small Business Economics](#)
April 2017, Volume 48, [Issue 4](#), pp 1047–1069 | [Cite as](#)

Self-employment amongst migrant groups: new evidence from England and Wales

Authors [Authors and affiliations](#)

Ken Clark, Stephen Drinkwater ✉, Catherine Robinson

Accessing census data

- Full information on the census microdata web page on UK Data Service
- Open data – available in spreadsheet format (csv files) from census offices. Also available as SPSS/Stata/Nesstar format from UK Data Service ***without registration***
- Safeguarded data: From 1961 to 2011, available from the UK Data Service, ***requires online registration***
- Controlled data ***via census offices only***

How to access

[UK Data Service home](#) [Site Search](#) [FAQ](#) [Help](#)

UK Data Service
Census Support



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Census microdata

SHARE

We provide access to cross-sectional census microdata, these are anonymised individual level records sampled from a single census. They are large individual level files which resemble the sort of data that might be collected directly from a questionnaire. Because individual records contain a wide range of individual and household characteristics, the data enable multivariate analyses for a wide range of purposes.



The UK Data Service holds contemporary data from the 1981 to 2011 Censuses and microdata samples from 1961 onwards are planned.

- [Guide to census microdata](#)

Microdata files are available at four levels, two of which can currently be accessed through the UK Data Service in the same manner as survey data.

ACCESS CENSUS MICRODATA VIA THE UK DATA SERVICE

End User Licence data are available to registered users who have agreed to the licence conditions. Overseas applications must be approved by the data depositors.

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[Scottish Longitudinal Study](#)
[Development & Support Unit](#)
[Northern Ireland Longitudinal Study](#)
[Research Support Unit](#)
[The Integrated Census Microdata \(I-CeM\)](#)

Online access through Nesstar

- Access to teaching files
 - no registration required
- Access to safeguarded files
 - Can explore variables and run frequency tables
 - requires registration for more advanced analysis
- Registered users access with their login details
- If student or member of staff at a UK institution of higher or further education, login with their university username and password

Nesstar

UK Data Service



Delivering quality social and economic data resources

2011 Census Microdata Individual Safeguarded Sample (Local Authority)

Metadata

Study Description

Data Files Description

Variable Description

Communal Establishment

Family

Household

Household or communal establishment

Age of individual (grouped)

Age of household reference person

Number of cars and vans

Central heating

Country of birth of household reference person

Deprivation indicators of a household

Ethnic group of household reference person

Number of people in household who provide care

Number of individuals in household with long-standing illness/disability

Type of landlord

Wholly moving household indicator

Household multiple religion indicator

Household reference person NS-SEC

Pensioner household

Number of persons per room

Type of second address

Household reference person social grade

Whether accommodation is self-contained

Single adult household

DESCRIPTION

TABULATION

ANALYSIS

Dataset: 2011 Census Microdata Individual Safeguarded Sample (Local Authority)

Variable Group Household

Household or communal establishment

Age of individual (grouped)

Age of household reference person

Number of cars and vans

Central heating

Country of birth of household reference person

Deprivation indicators of a household

Ethnic group of household reference person

Number of people in household who provide care

Number of individuals in household with long-standing illness/disability

Type of landlord

Wholly moving household indicator

Household multiple religion indicator

Household reference person NS-SEC

Pensioner household

Number of persons per room

Type of second address

Household reference person social grade

Whether accommodation is self-contained

Single adult household

Tenure

Type of accommodation

Temporary access for today's session

Username:

Password:



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Questions?



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