UK Data Service

Online tools for accessing and analysing census data from the UK Data Service

Workshop 3: Accessing and analysing census microdata using Nesstar

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16th December 2020

Today …

- Introduction
  - The census
  - Census microdata
  - Accessing and analysing census microdata using Nesstar
- Demonstration – **exploring census microdata with Nesstar**
- Activity – in your own time, 10 mins
- Feedback from activity
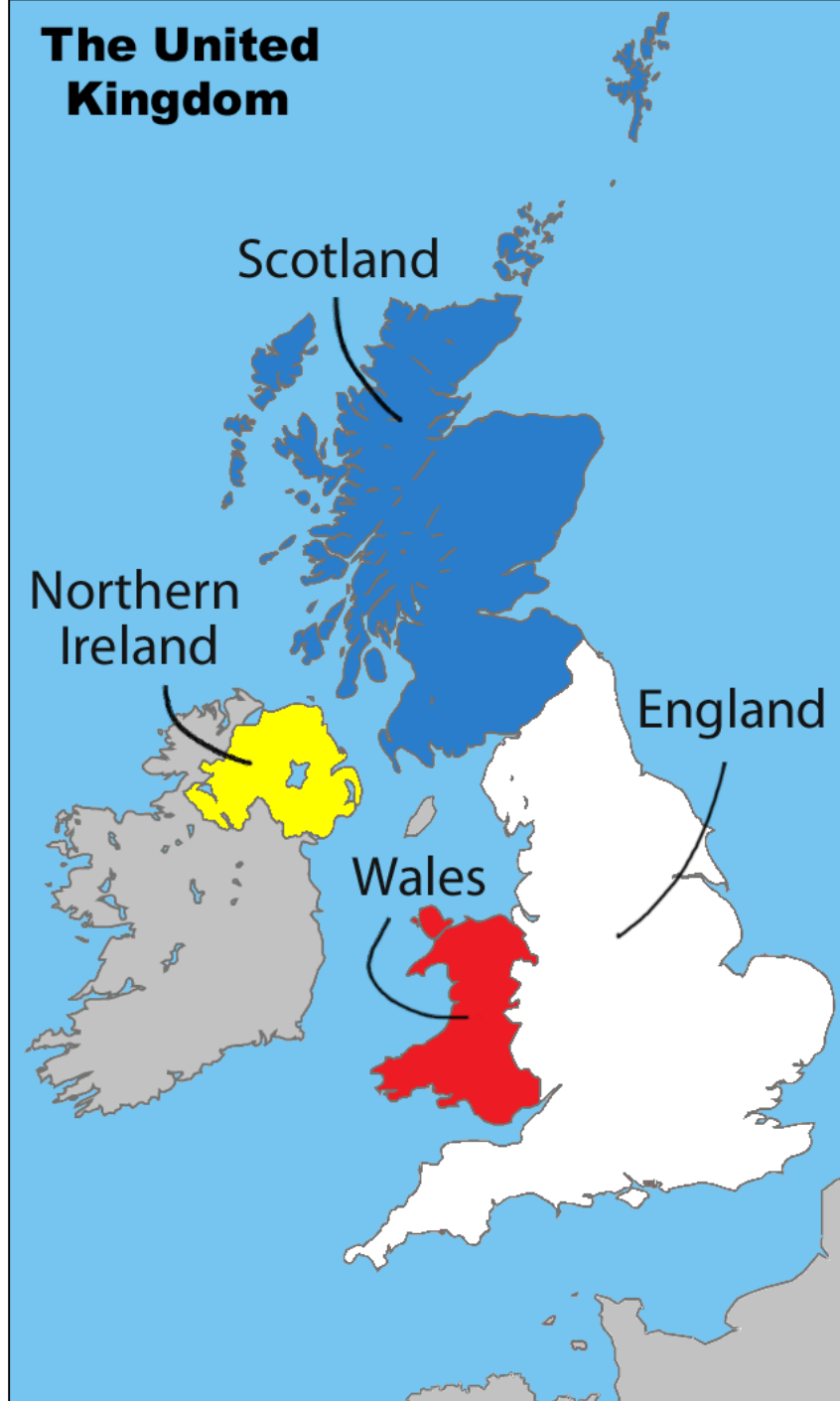- Questions and discussion

Introduction

Our aim is to …

- Provide an overview of census microdata

- Show how to access census microdata from the UKDS

- Demonstrate how to explore census microdata and perform simple analysis online using **Nesstar**

- Gain an understanding of what census microdata could be used for

Census Data

- Census Act 1800. Enabled the first census on 1801.

- Until 1831 the census was a head count of everyone in the country on a given day.

- Currently, the census it is defined as the "count of all people and households", incorporating gradually more information of the population.

The United Kingdom

National Records of Scotland

Northern Ireland Statistics & Research agency

Office for National Statistics

Scotland

Northern Ireland

Wales

England

What is census?

- Main function to count the population at one or more locations
- Obtain some characteristics about the population
- Outputs for small geographies

What is census for?

- Informs public spending/policy making process
- Used as a basis for other statistical systems
- Used by Central and Local Governments, NGOs, and for research purposes (which helps in informing public policy)

What questions were asked?

Demographics
- Age
- Sex
- Country of Birth
- Short-term residence
- Ethnicity
- Religion
- Passports
- Language
- National identity
- Marital status

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

How census microdata looks…

	agegpt	aprxsocgr	cofbt	econac1t	ethew1t	famcomp	health1
1	55 to 64	DE	UK	Economica…	White	Married/sam…	Good health
2	35 to 44	C2	UK	Economica…	White	Lone parent f…	Very good health
3	35 to 44	DE	UK	Economica…	White	Cohabiting c…	Very good health
4	16 to 24	C1	UK	Economica…	White	Cohabiting c…	Good health
5	45 to 54	C1	UK	Economica…	White	Cohabiting c…	Very good health
6	55 to 64	C2	UK	Economica…	White	Married/sam…	Good health
7	35 to 44	C2	UK	Economica…	White	Lone parent f…	Good health
8	0 to 15	No code re…	UK	No code re…	White	Cohabiting c…	Good health
9	65 to 74	C1	UK	Economica…	White	Married/sam…	Very good health
10	55 to 64	DE	UK	Economica…	White	Not in a family	Fair health

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

Safeguarded census microdata topic guide (1991-2011)

	A	B	C	D	E	F	G	H	I	J	K	L	M
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 Re
3	Sex	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
5	Exact pension age	.	.	.	.	.	.	.	Yes	Yes	Yes	Yes	Yes
6	Person of pensionable age	.	.	.	.	.	.	.	Yes	Yes	Yes	Yes	Yes
7	Marital Status	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	Living arrangements	.	.	.	.	.	.	.	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

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

Why use census microdata?

- Very flexible
- Large sample size
- Can create regional and local authorities aggregated variables
- Can complement survey data
- Allows to undertake several type of statistical analysis
- Allows looking at change over time

But

- Sample data, hence results are estimates
- Geographical detail is limited in safeguarded data

Research on microdata

Housing disadvantage →

jems Journal
Journal of Ethnic and Migration Studies ›
Latest Articles

Enter keywords, authors, DOI etc.

208 Views

2 CrossRef citations to date

Special Issue: Opportunities and challenges doing interdisciplinary research: What can we learn from studies of ethnicity, inequality and place?

Slippery discrimination: a review of the drivers of migrant and minority housing disadvantage

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

GEOGRAPHICAL JOURNAL

Geographical Society with IBG
Advancing geography and geographical learning

REGULAR PAPER | 🔒 Open Access | (cc) (i)

← Internal migration

Ethnic internal migration: The importance of age and migrant status

Frances Darlington-Pollock ✉, Nik Lomax, Paul Norman

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

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

Finding data

Where to find census microdata

Open data

Available in spreadsheet format (csv files) from census offices:
ONS, NRS and NISRA

Also available as SPSS/Stata/Nesstar from the UK Data Service **without registration**

Safeguarded data

From 1961 to 2011, available from the
UK Data Service, **requires online registration**

Controlled- Secure data
Via census offices only: ONS, NRS and NISRA

Accessing census microdata from the UKDS

Finding the data

UK Data Service

About us   Get data   Use data   Manage data   Deposit data   News and events

Register / Login

Explore the UK's largest collection of social, economic and population data resources

census microdata

Search data 🔽 🔍

Online access through **Nesstar**

Access to teaching files	Access to safeguarded files
• No registration required	• Can explore variables and run frequency tables • Requires registration for more advanced analysis

• Registered users access with their login details

• Students and members of staff at UK institutions of higher or further education can login with their university username and password

The way to **Nesstar** 1…

About us   **Get data**   **Use data**

- About our data
- Key data
- Data by theme
- Data by geography
- Open data
- How to access
- Other providers
- Explore online
- Data access policy
- Thesauri

The way to **Nesstar** 2...

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Explore online

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A selection of data are available to explore via our online tools.

Nesstar

Nesstar is the online data exploration system used by the UK Data
access to a wide variety of datasets. All visitors to our Nesstar Cat
metadata, variable frequencies and use the simple and advanced s
Registered users can also create simple online cross-tabulations, p
download subsets of variables in a variety of formats.

Census

The way to **Nesstar** 3...

Explore online

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SHARE

Accessing data using Nesstar:

Nesstar is available at: nesstar.ukdataservice.ac.uk

Web browser information:

- Internet Explorer users: if you experience a blank screen, or receive an error message,
  when trying to log in, either use FireFox or follow the instructions given in our FAQ
  section about Nesstar

Nesstar…

Nesstar demo

- ukdataservice.ac.uk
- How to find census microdata
- Catalogue pages: getting information about the census
- How to download the data
- Using Nesstar to view data and do simple analyses online

Activity

1. How many cases are there in the England and Wales 2011 microdata?

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

Variable lastyrwrkg: Last year worked

Values	Categories	N	
1	In employment	1337980	63.8%
2	Last worked in 2011	25456	1.2%
3	Last worked in 2010	98084	4.7%
4	Last worked in 2008 or 2009	100852	4.8%
5	Last worked in 2006 or 2007	62332	3.0%
6	Last worked in 2004 or 2005	53019	2.5%
7	Last worked in 2002 or 2003	43911	2.1%
8	Last worked in 2000 or 2001	46822	2.2%
9	Last worked in 1996 to 1999	77905	3.7%
10	Last worked in 1991 to 1995	84464	4.0%
11	Last worked before 1991	166175	7.9%
-9	Not applicable	751149	

SUMMARY STATISTICS

Valid cases	2097000
Missing cases	751149
Minimum	1.0
Maximum	11.0

Total cases = 2,097,000 + 751,149 = 2,848,149

2. *What proportion of the population is usually in work?*

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

Variable hours: Hours worked per week

LITERAL QUESTION

In your main job, how many hours a week (including paid and unpaid overtime) do you usually work?

Values	Categories	N	
1	Part-time:15 hours or less worked	129589	9.7%
2	Part-time:16 to 30 hours worked	261719	19.6%
3	Full-time: 31 to 48 hours worked	769355	57.5%
4	Full-time: 49 or more hours worked	177317	13.3%
-9	Not applicable	1510169	

SUMMARY STATISTICS

Valid cases	1337980
Missing cases	1510169
Minimum	1.0
Maximum	4.0
This variable is numeric	

Total cases = 1,337,980 + 1,510,169 = 2,848,149

% working = 1,337,980 / 2,848,149 = 47.0%

3. How many adults in employment are usually working from home?

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

Variable wrkplaceew: Workplace

Values	Categories	N	
1	No fixed place	108681	8.1%
2	Work mainly at or from home	139361	10.4%
3	Inside LA area of residence	566648	42.4%
4	Outside LA area but inside GB	521151	39.0%
5	Northern Ireland	145	0.0%
6	Outside UK	1994	0.1%
-9	Not applicable	1510169	
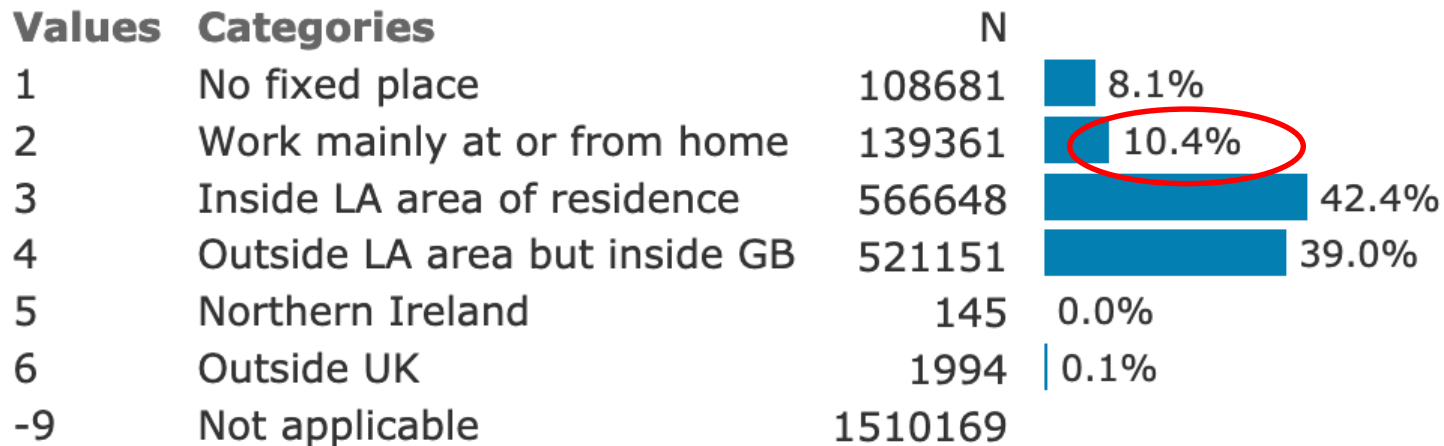
SUMMARY STATISTICS

Valid cases	1337980
Missing cases	1510169
Minimum	1.0
Maximum	6.0
This variable is numeric	

Discussion

Online resources from the UK Data Service

- Guides
- Videos
- Data Skills Modules

Methods and Software Guides

For example:

Software guides

- What is Stata?
- What is SPSS 20 for Windows?
- Using R to analyse key UK surveys

Census data

- [Guide to mapping 2011 Microdata using R.](#)

Videos

- YouTube: https://www.youtube.com/user/UKDATASERVICE

Webinars

UK Data Service Computational Social Science Drop-in

08 Dec - 09 Feb 2021

Online, 13.00 - 14.00

Coding Demonstrations: Social Network Analysis in Python

13 - 27 Jan 2021

Online, 14.00 - 15.00

Safe Researcher Training

14 Jan 2021

Online

Data pre-processing training series

14 - 28 Jan 2021

Online, 13.00 - 14.00

Safe Researcher Training

02 Feb 2021

Online

https://ukdataservice.ac.uk/news-and-events/events

Questions

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