

# The Office for National Statistics Longitudinal Study: The research possibilities of its large sample size and the 2021 Census linkage

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**UK CENSUS USERS CONFERENCE.**

**Manchester, June 12 – 13<sup>th</sup> 2025**

## **Presentation:**

- Introduce the ONS Longitudinal Study and its data.
- Linked administrative (vital events) data.
- CeLSIUS, the website and the Data Dictionary
- 2021 Census
- Beta testing of the 2021 Census linkage to the ONS Longitudinal Study

# The ONS Longitudinal Study

- Dynamic sample of population of England & Wales.
- Selected if birthday falls on one of four days (i.e.,  $4/365$  = 1% population).

Individual and household data (includes data on other people in the household e.g. parents, siblings, spouse, children).

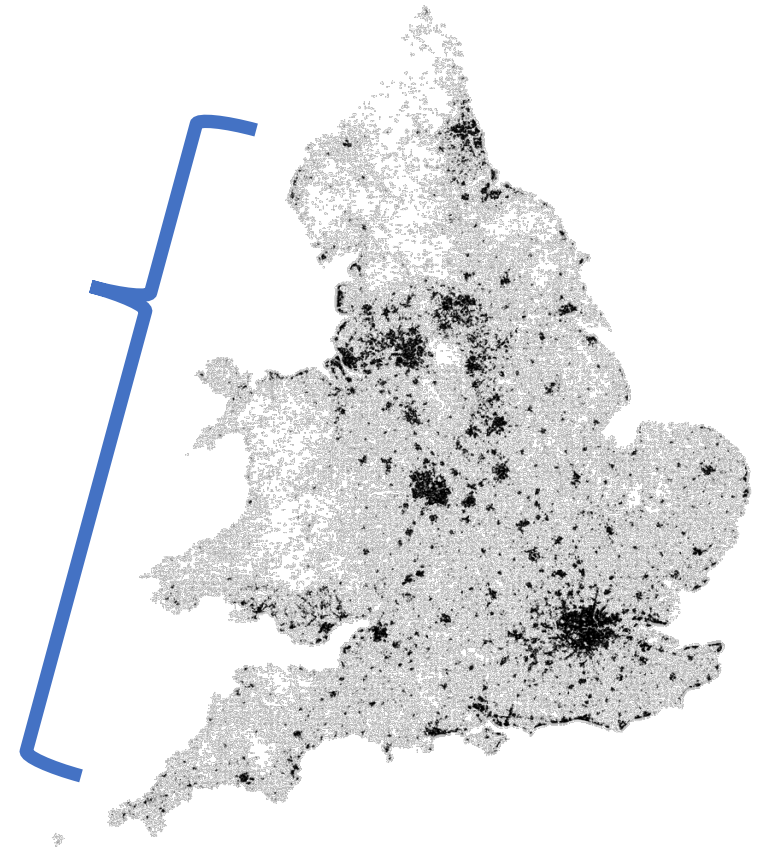
Currently includes data from the 1971 – 2011 censuses, giving up to 40 years of longitudinal follow-up of study members.

Linked to some events data, including births, deaths and cancer registrations.

**2021 Census data to be linked towards the end of 2025** (linkage currently in beta testing phase).

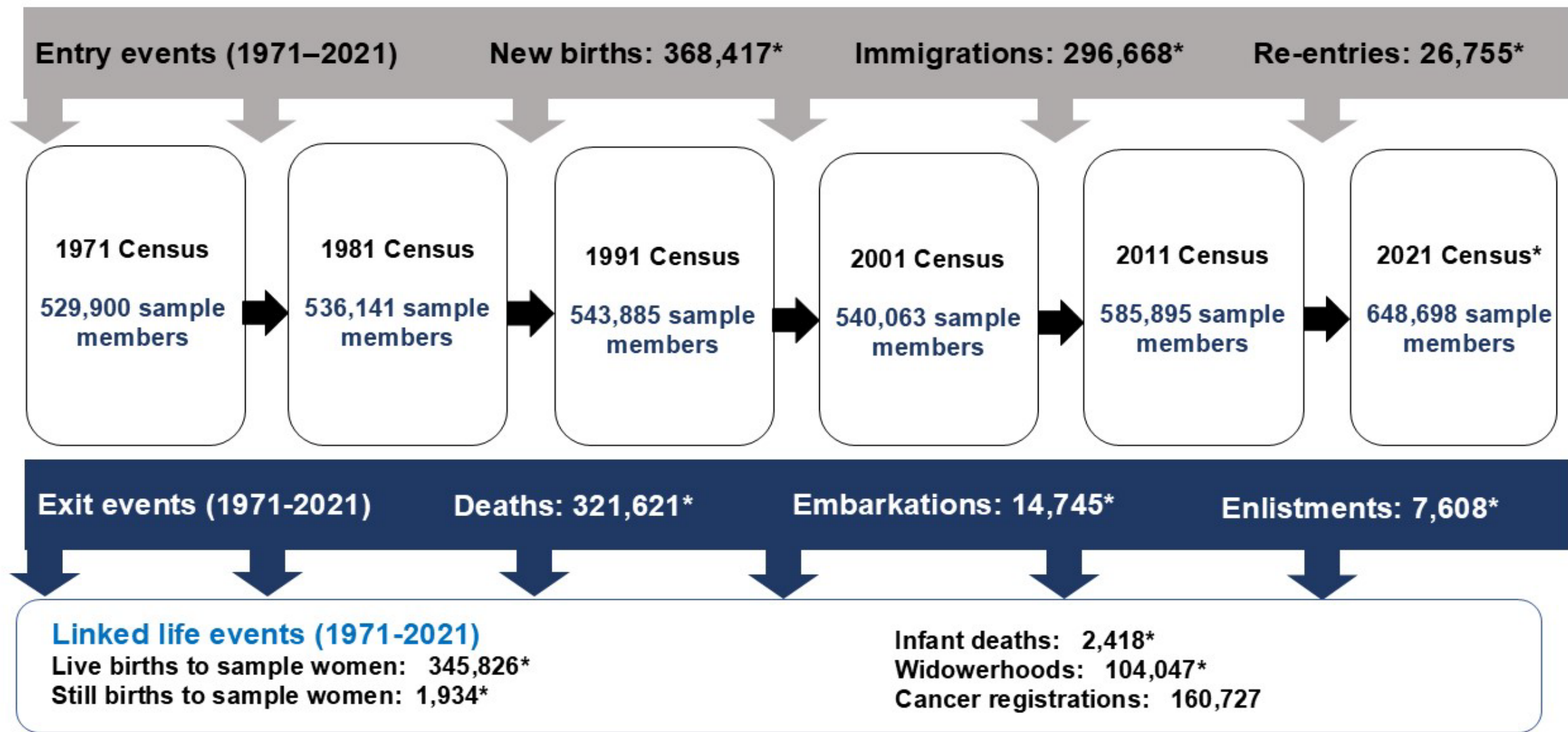
Over 40 tables and 5,000 variables.

All Census topics available.



<http://www.theguardian.com/news/datablog/interactive/2013/aug/01/every-person-in-england-wales-dot-map#7/52.929/-2.571>

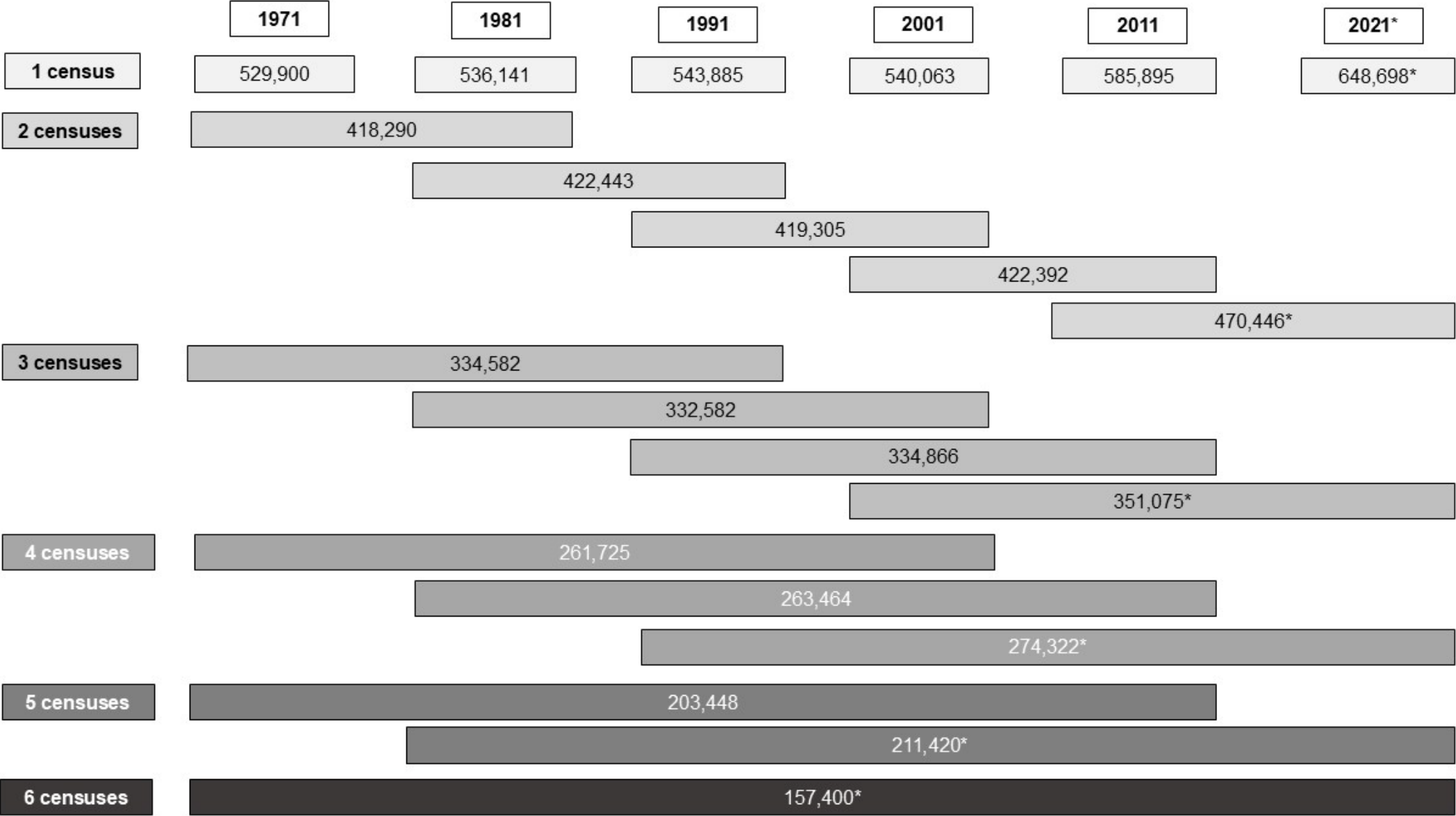
# What information does the LS contain?



\*Provisional counts based on beta test data

Data source: ONS LS

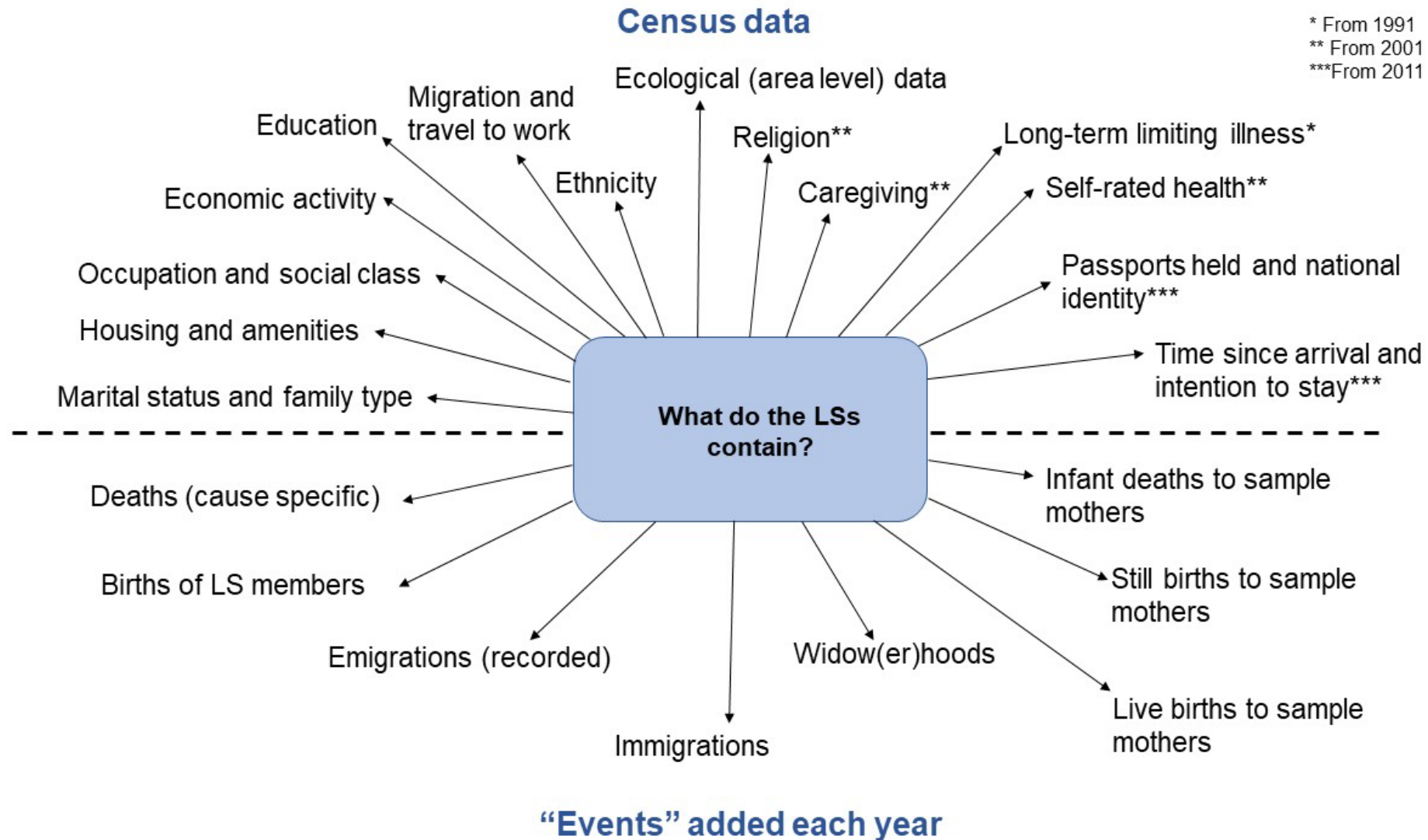
# Cross-sectional and longitudinal sample sizes



\*Provisional counts based on beta test data

Data source: ONS LS

## Topics included in the ONS LS (1)



# Topics included in the ONS LS (2)

Includes geographical location of LS members.

## Information at level of:

- Region.
- County.
- County district.
- Ward.
- Lower levels (e.g. output areas, postcodes, but need permission from ONS - potential disclosure issues).

## => Allows research on:

- Migration.
- Mobility – social categories.
- Analysis of ecological data (by linking for example population density, neighbourhood deprivation data).
- Analyse specific areas (e.g. travel to work areas).

# **CeLSIUS** ([celsius@ucl.ac.uk](mailto:celsius@ucl.ac.uk))

**User Support Officers** (Jitka Pikhartova, Aly Sizer, Jemima Stockton)

- Advise on design and feasibility of projects.
- Guide researchers through the application process and submit the applications.
- Create data extracts.
- Disclosure control compliance checks of outputs.
- Information on syntax files that are available for LS researchers to use to derive some variables, e.g. causes of death.



# CeLSIUS Website

## CeLSIUS

We enable research using the Office for National Statistics (ONS) Longitudinal Study - the largest nationally representative longitudinal dataset in the UK

Longitudinal studies follow the lives of individuals over a long period of time, showing us how people are affected by changes in society. The ONS Longitudinal Study (LS) contains the census data and some life events data of approximately one million sample members, collected over 40 years. CeLSIUS is funded by the ESRC to provide free support to researchers wishing to use this data.



### About the ONS LS

Find out more about the study



### Using the ONS LS

Find out how to access and use the data



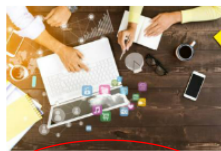
### Data dictionary

Look up the variables in the study



### Resources

Information and guidance to help you use the data



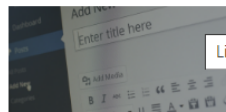
### Research

Current and past ONS LS research projects and the resulting outputs



### About CeLSIUS

Meet the team



### Linking our Lives Blog

Our blog showcases outstanding research using the ONS LS



### Linking our Lives Podcast

In conversation with researchers and users of ONS LS research



### Research and policy briefs

Policy and research briefing notes on research using the ONS LS

Email [celsius@ucl.ac.uk](mailto:celsius@ucl.ac.uk)

Subscribe to our [mailing list](#), follow us on [twitter](#)

## Linking our Lives: England and Wales since 1971

### The Blog

Check out the blog edited by journalist and author Fran Abrams and CeLSIUS PI Nicola Shelton

### The Podcast

Tune into our podcast to hear directly from researchers about the work they are doing and why it matters. Presented and edited by former BBC journalist Chris Garrington.

[Data Dictionary](#): allows you to browse through the ONS LS variables or search for variables that match a query term.

## [Thematic guides](#) :

- Defining a study population
- Births and fertility
- Ethnicity
- Events
- Socio-economic indicators
- Mortality
- Households and families
- International migration
- Discrepancy variables
- Imputation flag variables

Information on [past and recent projects](#) .

## News and events

# The Data Dictionary

## CeLSIUS DATA DICTIONARY



### CeLSIUS data dictionary

The CeLSIUS data dictionary allows you to browse through the variables within the CeLSIUS data resources

Variables are grouped together into different tables based on their source; there are separate tables for each and for other persons in their households, etc) and also tables for linked data such as NHS registrations.

Variables can be searched on the basis of their alphanumeric ID code, their description or the value labels fo

- [Search the data dictionary](#)
- [Browse the data dictionary](#)

### Dictionary search

Enter a search term in the box below. This will be used to search variable names and descriptions and also the variable value labels.

Click 'Expand' on the search results to show the list of variables that match the search term.

Submit

ed on original version supplied by ONS

TableID	Table description
CORE1	Core information for each LS member
ME71	1971 Census - LS members
ME81	1981 Census - LS members
ME91	1991 Census - LS members
ME01	2001 Census - LS members
ME11	2011 Census
ME11x	2011 Census Restricted
NM71	1971 Census - non-LS members
NM81	1981 Census - non-LS members
NM91	1991 Census - non-LS members
NM01	2001 Census - non-LS members
NM11	2011 Census - non-LS members
NBIR	New births of LS members
DETH	Deaths of LS members
IMMG	Immigrations (registration with NHS)
EMBR	Embarkations
CANC	Cancer registrations
LBSM	Live births to sample mothers
SBSM	Still births to sample mothers
IDMI	Infant mortality - Infant death of a birth to sample mother
WDOW	Widow(er)hoods
PSYC	Long-stay psychiatric (1971-1983)
ENLS	Enlistments into the armed forces
REEN	Re-entries
MOTH71	1971 Census - mother of LS member
FATH71	1971 Census - father of LS member

# Census 2021

- 21st March 2021.
- During a national COVID-19 lockdown.
- 97% person response rate, above 88% in all local authorities – vs. targets of 94% and 80% respectively.
- The first 'digital first' census: 89% of responses completed online vs. 17% in 2011.
- England & Wales population estimate of 59.6m, 6.3% increase since 2011 Census.
- 673,000 responses with LS date of birth.
- > 99% traced by NHS Digital – 98.8% in 2011, 99.3% in 2001.

# 2021: Questions asked for the first time

**26** Which of the following best describes your sexual orientation?

➡ This question is **voluntary**

- ☐ Straight/Heterosexual
- ☐ Gay or Lesbian
- ☐ Bisexual
- ☐ Other sexual orientation, write in

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**27** Is the gender you identify with the same as your sex registered at birth?

➡ This question is **voluntary**

- ☐ Yes
- ☐ No, write in gender identity

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**32** Have you **previously** served in the UK Armed Forces?

➡ **Current serving members** should only tick "no"

- ☐ Yes, previously served in **Regular** Armed Forces
- ☐ Yes, previously served in **Reserve** Armed Forces
- ☐ **OR** no

# 2011-21: Questions asked for the second time

**18** What is your main language?

☐ English ➔ **Go to 20**

☐ Other, write in (including British Sign Language)

**19** How well can you speak English?

Very well      Well      Not well      Not at all

☐      ☐      ☐      ☐

**22** What passports do you hold?

↻ Tick all that apply

☐ United Kingdom

☐ Irish

☐ Other, write in

☐ None

**20** What passports do you hold?

↻ Tick all that apply

☐ United Kingdom

☐ Ireland

☐ Other, write in

☐ **OR** none

# 2011-2021: Changes to the questions

**14** Do you look after, or give any help or support to family members, friends, neighbours or others because of either:

- long-term physical or mental ill-health/disability?
- problems related to old age?

↪ Do not count anything you do as part of your paid employment

- ☐ No
- ☐ Yes, 1 - 19 hours a week
- ☐ Yes, 20 - 49 hours a week
- ☐ Yes, 50 or more hours a week

**24** Do you look after, or give any help or support to, anyone because they have long-term physical or mental health conditions or illnesses, or problems related to old age?

↪ Exclude anything you do as part of your paid employment

- ☐ No
- ☐ Yes, 9 hours a week or less
- ☐ Yes, 10 to 19 hours a week
- ☐ Yes, 20 to 34 hours a week
- ☐ Yes, 35 to 49 hours a week
- ☐ Yes, 50 or more hours a week

**23** Are your day-to-day activities limited because of a health problem or disability which has lasted, or is expected to last, at least 12 months?

↪ Include problems related to old age

- ☐ Yes, limited a lot
- ☐ Yes, limited a little
- ☐ No

**22** Do you have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?

- ☐ Yes
- ☐ No → **GO TO 24**

**23** Do any of your conditions or illnesses reduce your ability to carry out day-to-day activities?

- ☐ Yes, a lot
- ☐ Yes, a little
- ☐ Not at all

**4** On 27 March 2011, what is your legal marital or same-sex civil partnership status?

- |  |  |
|--|--|
| <input type="checkbox"/> Never married and never registered a same-sex civil partnership | <input type="checkbox"/> In a registered same-sex civil partnership                              |
| <input type="checkbox"/> Married   | <input type="checkbox"/> Separated, but still legally in a same-sex civil partnership            |
| <input type="checkbox"/> Separated, but still legally married                            | <input type="checkbox"/> Formerly in a same-sex civil partnership which is now legally dissolved |
| <input type="checkbox"/> Divorced  | <input type="checkbox"/> Surviving partner from a same-sex civil partnership                     |
| <input type="checkbox"/> Widowed   |  |

**4** On 21 March 2021, what is your legal marital or registered civil partnership status?

- ☐ Never married and never registered a civil partnership → **GO TO 6**
- ☐ Married
- ☐ In a registered civil partnership
- ☐ Separated, but still legally married
- ☐ Separated, but still legally in a civil partnership
- ☐ Divorced
- ☐ Formerly in a civil partnership which is now legally dissolved
- ☐ Widowed
- ☐ Surviving partner from a registered civil partnership

**5** Who is (was) your legal marriage or registered civil partnership to?

- ☐ Someone of the opposite sex
- ☐ Someone of the same sex



## 2011-2021: Changes to the questions – national identity

**15** How would you describe your national identity?

➤ Tick all that apply

☐ English

☐ Welsh

☐ Scottish

☐ Northern Irish

☐ British

☐ Other, write in \_\_\_\_\_

**14** How would you describe your national identity?

Tick all that apply

☐ British

☐ English

☐ Welsh

☐ Scottish

☐ Northern Irish

☐ Other, write in \_\_\_\_\_

# Beta testing of the 2021 Census linkage

- Started in February/ March and will close in July.
- Nine research projects selected on several criteria (e.g. include a longitudinal element relating to census 2021 data, address one of the new questions or questions asked for the second time).
- Projects cover social inequality and longevity; health inequalities and selective migration; sexual orientation and gender identity; migration, ethnic/ national identity and passports held; internal migration; unpaid caring; housing trajectories of immigrants; longitudinal analysis of Welsh and other language use; socio-demographic factors associated with travel to work.



# **Beta test project: Claims to belonging: migration, ethnic and national identity and passport holding – stability and change.**

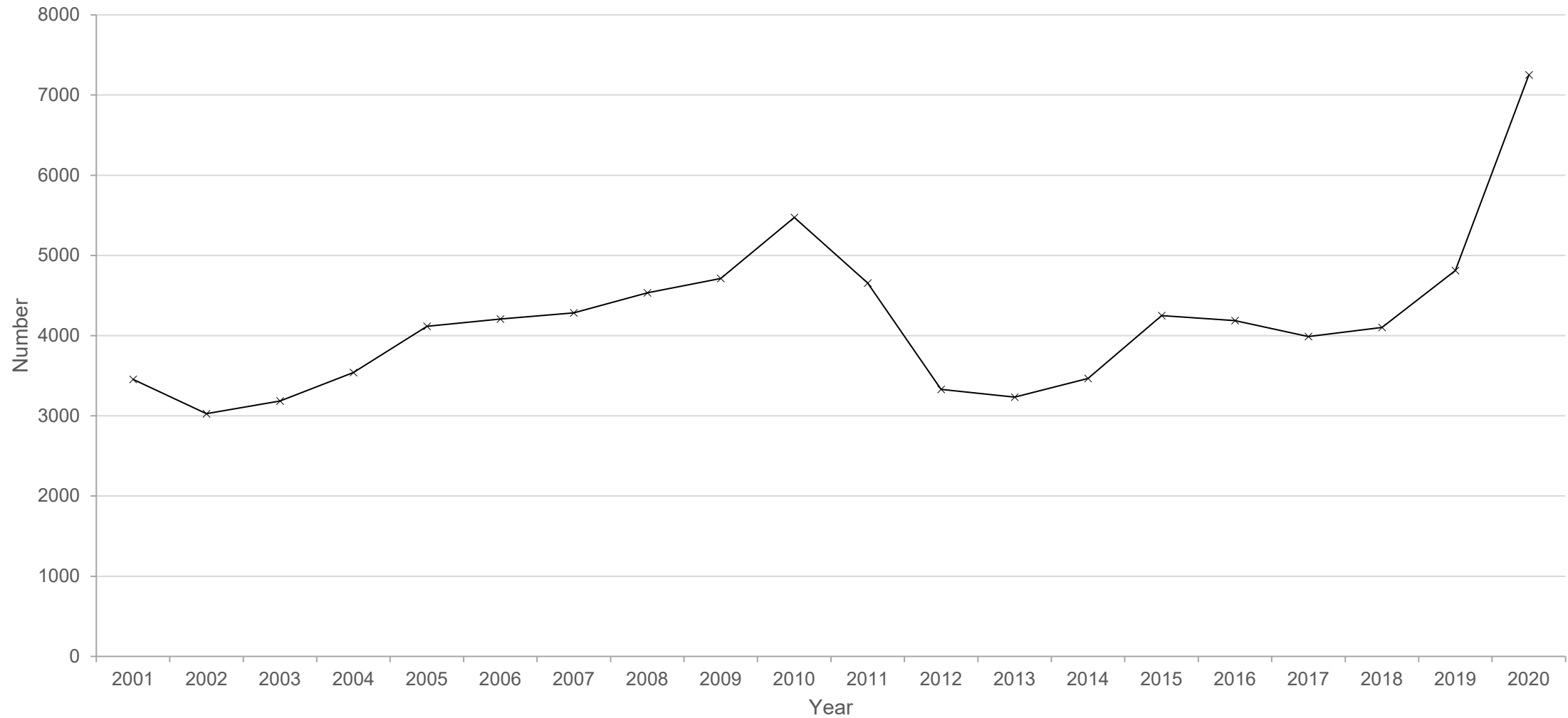
The 2021 Census linkage to the Longitudinal Study enables examination of changes occurring during the 2011-2021 intercensal period, e.g., the UK's EU Referendum and subsequent withdrawal.

Examined as part of this beta test project.

Three aims:

- 1) Investigate whether Brexit was associated with changes to migration flows of EU nationals to and from England and Wales, and the extent to which the referendum was associated with British citizens applying for an Irish or other EU member passport.
- 2) Examine the evolution of national identity in the period from 2011 to 2021 and specifically consider the relevance of local context for identification.
- 3) Examine stability and change in ethnic identity since 2001, examining how any such change is related to household and socioeconomic circumstances, change in socioeconomic position and social mobility.

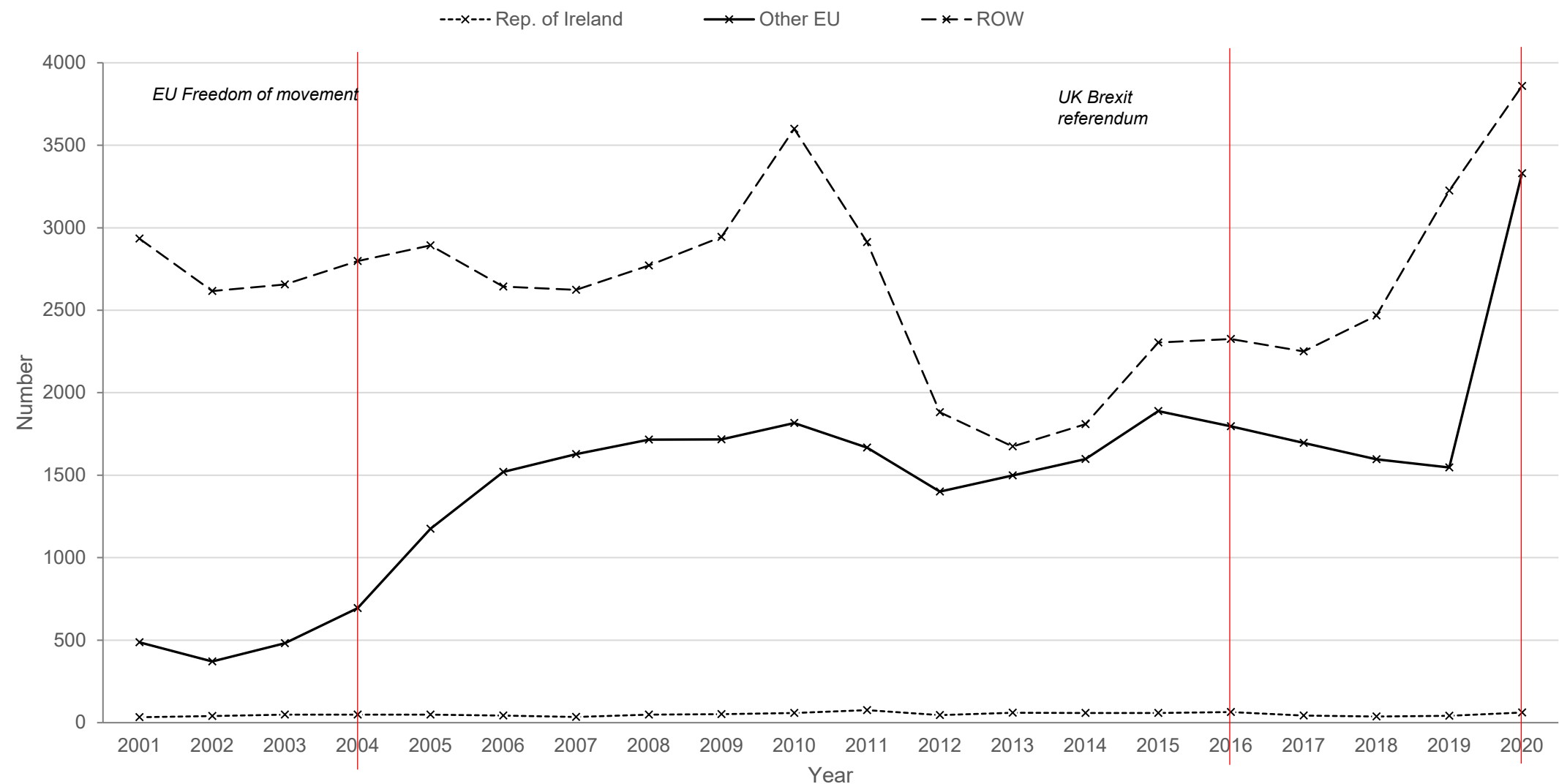
# Migration to England and Wales (2001 – 2020) (1)



*Data source: ONS LS*

NB: results provisional as based on beta test data.

# Migration to England and Wales (2001 – 2020) (2): Annual immigrations (2001 - 2020) by country of birth (Republic of Ireland, Other EU, Rest of the World)



Data source: ONS LS

NB: results provisional as based on beta test data.

# Changes to passports held by LS members (2011-2021)

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### Irish passport applications from British applicants skyrocket

© 30 October 2018



### Number of Britons seeking Irish passports increases by two-thirds

Ireland's foreign minister, Charlie Flanagan, says near 20,000 rise in number of applications partly the result of Brexit vote



📷 The number of Irish passports issued to Britons rose by 42% in 2016. Applications went up sharply after the Brexit vote. Photograph: Alamy

**Peter J Walker**

# Passports held (2011-2021) (1): Was the EU referendum and Brexit associated with British citizens applying for an Irish or other EU member passport (numbers).

2011	2021										
Passports held	No passport	UK Only	Irish only	Other EU only	Other only	UK + Irish	UK + other EU	UK + other	Irish + other EU	Irish + other	Total
No passport	31,531	34,778	70	422	146	41	33	48	<10	0	<67,079
UK Only	21,514	342,852	149	199	185	1,162	565	1,727	<10	12	<368,375
Irish only	59	111	2,146	<10	<10	122	0	<10	<10	12	<2,490
Other EU only	210	839	10	9,149	76	0	893	30	<10	0	<11,217
Other only	228	6,341	<10	134	4,981	<10	15	1,363	0	<10	<13,092
UK + Irish	<10	70	40	0	0	164	0	<10	0	0	<294
UK + other EU	<10	201	0	23	<10	0	258	<10	0	0	<512
UK + other	12	2,012	<10	0	51	<10	14	2,093	0	<10	<4,212
Irish + other EU	<10	<10	<10	<10	0	0	0	0	<10	0	<50
Irish + other	0	<10	<10	<10	<10	0	0	<10	0	42	<92
<b>Total</b>	<b>&lt;53,584</b>	<b>&lt;387,224</b>	<b>&lt;2,455</b>	<b>&lt;9,957</b>	<b>&lt;5,469</b>	<b>&lt;1,509</b>	<b>1,778</b>	<b>&lt;5,301</b>	<b>&lt;50</b>	<b>&lt;86</b>	<b>467,234</b>

# Passports held (2011-2021) (2): Was the EU referendum and Brexit associated with British citizens applying for an Irish or other EU member passport (percentages).

2011	2021									
Passports held	No passport	UK Only	Irish only	Other EU only	Other only	UK + Irish	UK + other EU	UK + other	Irish + other EU	Irish + other
No passport	58.84	8.98	2.85	4.24	2.67	2.72	1.86	0.91	<20.00	0.00
UK Only	40.15	88.54	6.07	2.00	3.38	77.00	31.78	32.58	<20.00	13.95
Irish only	0.11	0.03	87.41	<0.10	<0.18	8.08	0.00	<0.19	<20.00	13.95
Other EU only	0.39	0.22	0.41	91.89	1.39	0.00	50.22	0.57	<20.00	0.00
Other only	0.43	1.64	<0.41	1.35	91.08	<0.66	0.84	25.71	0.00	<11.63
UK + Irish	<0.02	0.02	1.63	0.00	0.00	10.87	0.00	<0.19	0.00	0.00
UK + other EU	<0.02	0.05	0.00	0.23	<0.18	0.00	14.51	<0.19	0.00	0.00
UK + other	0.02	0.52	<0.41	0.00	0.93	<0.66	0.79	39.48	0.00	<11.63
Irish + other EU	<0.02	>0.00	<0.41	<0.10	0.00	0.00	0.00	0.00	<20.00	0.00
Irish + other	0.00	>0.00	<0.41	<0.10	<0.18	0.00	0.00	<0.19	0.00	48.84
Total	100	100	100	100	100	100	100	100	100	100

Data source: ONS-LS

NB: results provisional as based on beta test data.

# Acknowledgment and disclaimer

- The permission of the Office for National Statistics to use the Longitudinal Study is gratefully acknowledged, as is the help provided by staff of the Centre for Longitudinal Study Information & User Support (CeLSIUS). CeLSIUS is supported by the ESRC under project ES/V003488/1. The authors alone are responsible for the interpretation of the data.”
- This work contains statistical data from ONS which is Crown Copyright. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates

# Thank you!

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## Migration to England and Wales (2001 – 2020) (2): Annual immigrations (2001 - 2020) by country of birth (Republic of Ireland, Other EU, Rest of the World)

Year	Republic of Ireland		Other EU		ROW		Total
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	
2001	33	0.96	487	14.10	2,934	84.94	3,454
2002	40	1.32	371	12.26	2,616	86.42	3,027
2003	48	1.51	482	15.13	2,656	83.36	3,186
2004	48	1.36	694	19.60	2,798	79.04	3,540
2005	48	1.17	1,175	28.55	2,893	70.29	4,116
2006	43	1.02	1,520	36.14	2,643	62.84	4,206
2007	35	0.82	1,627	37.97	2,623	61.21	4,285
2008	48	1.06	1,715	37.83	2,771	61.12	4,534
2009	52	1.10	1,717	36.43	2,944	62.47	4,713
2010	58	1.06	1,816	33.18	3,600	65.77	5,474
2011	76	1.63	1,667	35.80	2,913	62.56	4,656
2012	46	1.38	1,401	42.08	1,882	56.53	3,329
2013	60	1.86	1,499	46.37	1,674	51.78	3,233
2014	58	1.67	1,598	46.12	1,809	52.21	3,465
2015	58	1.36	1,889	44.44	2,304	54.20	4,251
2016	65	1.55	1,797	42.92	2,325	55.53	4,187
2017	43	1.08	1,696	42.52	2,250	56.41	3,989
2018	38	0.93	1,597	38.92	2,468	60.15	4,103
2019	41	0.85	1,547	32.14	3,225	67.01	4,813
2020	62	0.86	3,330	45.92	3,859	53.22	7,251
<b>Total</b>	<b>1,000</b>		<b>29,625</b>		<b>53,187</b>		<b>83,812</b>

Data source: ONS LS

# Who can access LS data?

Available for free to all researchers BUT...

- Research must be in public interest.
- Protection of confidentiality of data relating to individuals in LS is crucial.

Therefore, researchers must apply for access to the data.

**AND**

Be accredited by ONS (apply for accreditation through the ONS Research Accreditation Platform see:

[https://researchaccreditationservice.ons.gov.uk/ons/ONS\\_Registration.ofml](https://researchaccreditationservice.ons.gov.uk/ons/ONS_Registration.ofml)).

## Research Accreditation Service

### Create your account

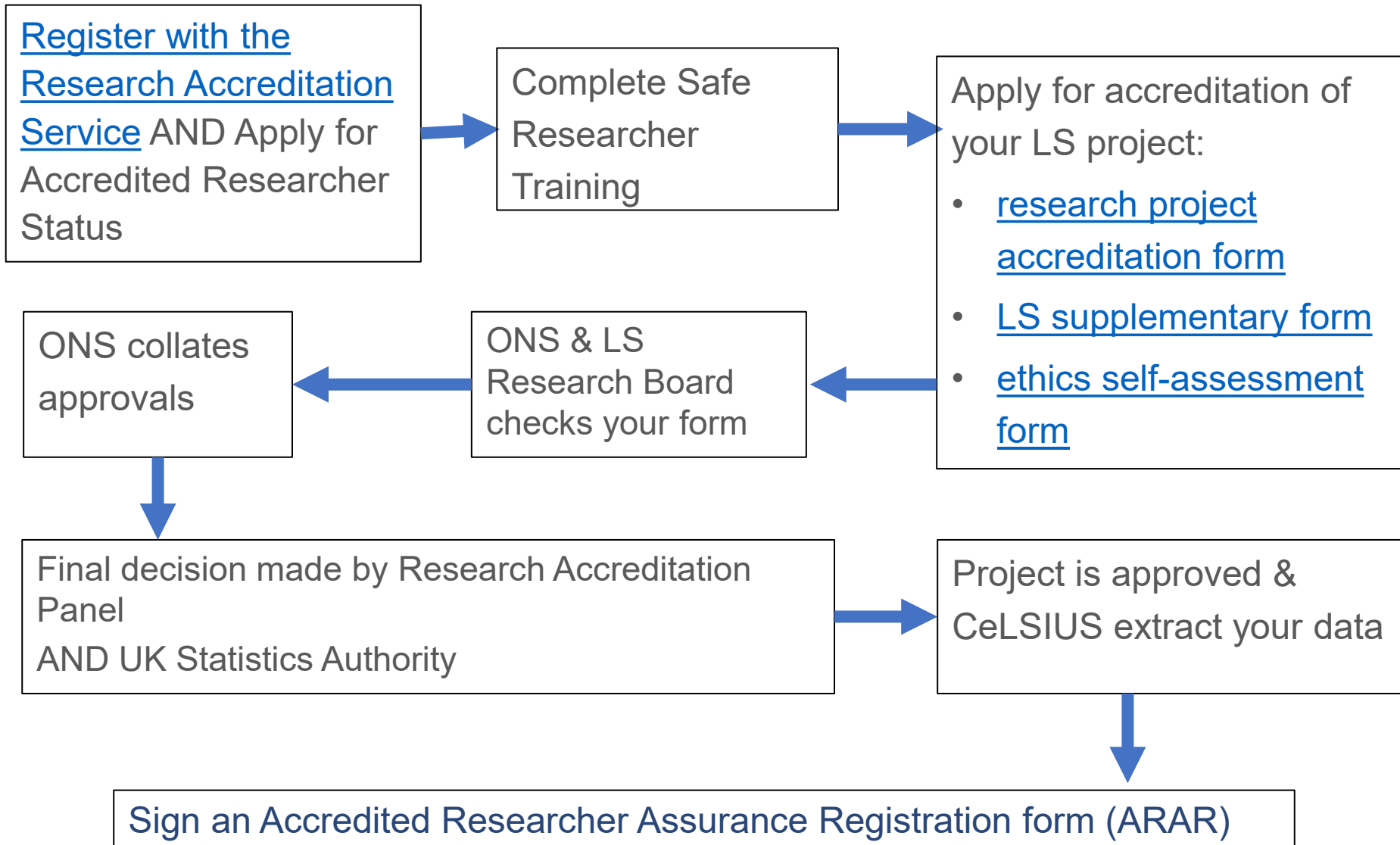
In order to access legally protected data, you must first become an Accredited Researcher under the Digital Economy Act 2017.

To get started, you will need to create an account.

This process will take around five minutes.

Start now >

# Apply!



# Accessing your data

## **SRS safe settings**

- Hampshire (Titchfield)
- Wales (Newport)

## **University-based safe pods**

- 2022 onwards
- See:  
<https://safepodnetwork.ac.uk/>

## **Assured Organisational Connectivity agreement**

- SRS in office
- Institution owned computer at home (sign extended Security Operations Procedures document & get ONS approval)

## **Remote access**

- Send code to CeLSIUS
- We send output

# The three UK Longitudinal Studies

**ONS Longitudinal Study (ONS LS):** covers England and Wales; 1% sample (selected using 4 birthdates); 1971 onwards.

**Scottish Longitudinal Study (SLS):** covers Scotland; 5.3% sample (selected using 20 birthdates); 1991 onwards.

**Northern Ireland Longitudinal Study (NILS):** covers Northern Ireland; 28% sample (selected using 104 birthdates); 1981 onwards.

## **Dynamic samples:**

- New members enter between censuses: by birth or immigration.
- Members leave between censuses: by emigration or death.
- Census forms are linked for each year members are enumerated.

Therefore, analysis of very small geographies or other small groups possible.