

# Exploring sex, sexual orientation and gender identity through interactive visualisations

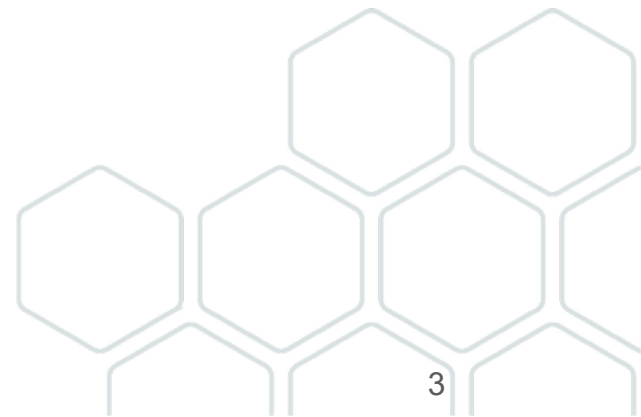
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# Presentation outline

- Background
- Visualisations
  - scatterplots
  - maps
- Summary.

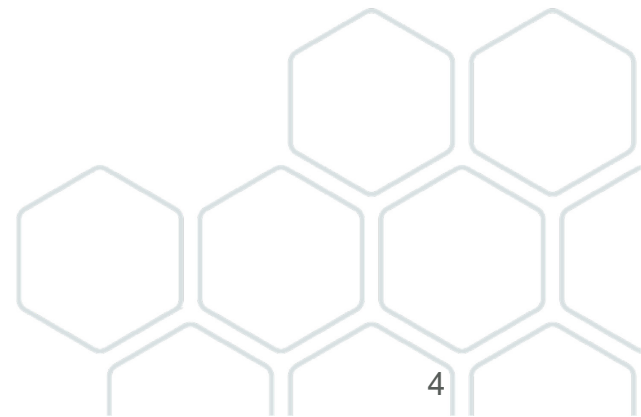
# Previous research: Sexual orientation

- Sexual identity data is commonly collected across surveys e.g. Natsal, Understanding Society and Health Survey.
- However, these lack detail at a lower geographical level and often have limited samples.
- Office for National Statistics have previously produced experimental statistics on sexual identity in the UK using the Annual Population Survey (2013-2015, 2020).
- However, these statistics are considered ‘unofficial’ and were created to assess methods more than produce results.



# Previous research: Gender

- Gender identity data much less widely collected (ONS 2020):
  - Trial of questions in Crime Survey for England and Wales, Active Lives Children and Young People survey, Taking Part Survey.
  - More widely collected in admin data, but still not extensive.
- International research includes the Canadian Census 2021 and Census' from Nepal (2011), India (2011) and Pakistan (2017), which all included a 'third gender' option.



# Census 2021

- Which of the following best describes your sexual orientation?
  - Straight/heterosexual.
  - Gay or Lesbian.
  - Bisexual.
  - Other sexual orientation, write in.
- Is the gender you identify with the same as your sex registered at birth?
  - “Yes” and “No, write in gender identity”.
- Questions were voluntary, varied slightly between England and Wales.
- Allowed respondents to request a confidential individual form, which overrode the information on a household form.

a) 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

b) 26 Pa un o'r canlynol sy'n disgrifio orau eich cyfeiriadedd rhywiol?  
Mae'r cwestiwn hwn yn **wirfoddol**

- Heterorywiol/Strêt
- Hoyw neu Lesbiaidd
- Deurywiol/Bi
- Cyfeiriadedd rhywiol arall, nodwch

c) 24 Which of the following best describes your sexual orientation?

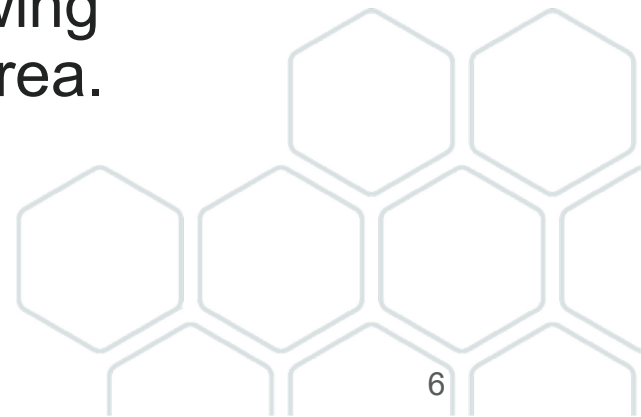
- Straight/Heterosexual
- Gay or Lesbian
- Bisexual
- Other sexual orientation, write in

d) 8 Which of the following best describes your sexual orientation?  
This question is **voluntary**  
Answer only if you are aged 16 or over  
Tick **one** box only

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

# Why make interactive visualisations?

- The 2021 census data provides the information at a level of geography that allows local authority areas to be visualised. This is a level of detail not available with other surveys.
- The data therefore provides a unique opportunity to display this data at this detail.
- ONS created maps to display the initial data, but these are single-variate.
- The aim with our visualisations is to display the data in a way that allows users more control over what they can explore, allowing them to examine their own assumptions about their local area.



# What features influence non-response rates?

- Datasets: Gender identity and sexual orientation.
- Area type: Lower tier Local Authorities.
- Scatterplots explored 2 variables:
  1. Main language.
  2. Religion.
- Programming language: Python.
- Integrated development environment (IDE): Jupyter Notebook
- Hosted on: GitHub.
- Packages: Bokeh, pandas.
- Platform for user interaction: Bokeh server.
- Hosted on: Heroku.

Scan me!



# Interactive mapping

Datasets: Gender identity and sexual orientation.

Area Type: Local Authority.

Visualisation: Using two R packages to highlight the distribution of these categories in urban/rural areas, providing an interactive tool for exploratory analysis.

- Programming language: R.
- Integrated development environment (IDE): RStudio/Shiny App.
- Hosted on: GitHub.
- Packages: Leaflet, tmap, ggplot2.
- Platform for user interaction: Shiny.
- Hosted on: Shiny.io.
- Let's dive in!





# References

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# Thank you.

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Want to check out our code?



**GitHub:**

UKDataServiceOpen/InteractiveGender

