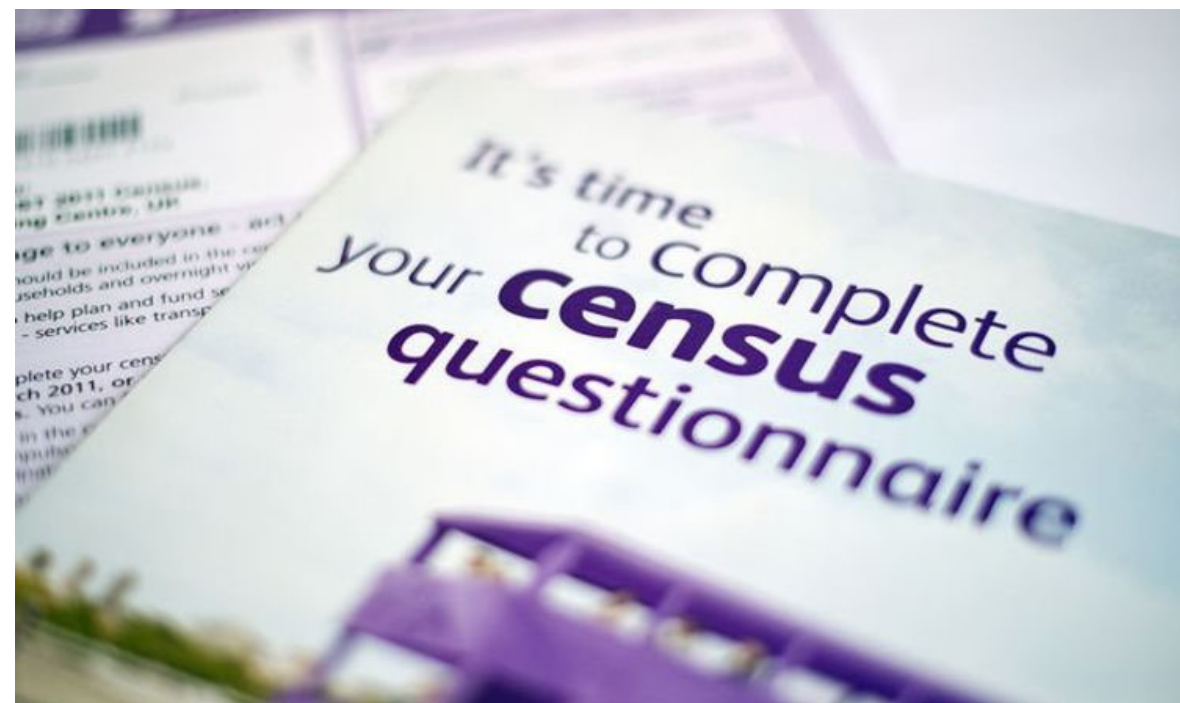


# Census 2021

Planning and designing your census research



# Census 2021

## Planning and designing your research

Nigel de Noronha, University of Manchester

21<sup>st</sup> June 2022

# What we will cover

Research focus

Geographical scale

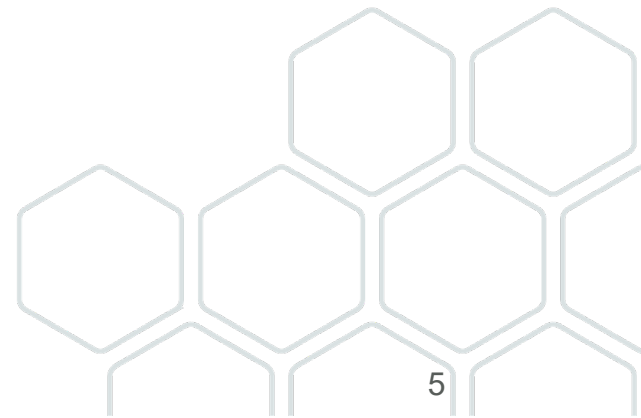
Developing your analytical skills

Some more advanced techniques

# Research focus

# Units of analysis

- People (individual)
- Households
- Places



# ONS Planned census data release

1

- Population estimates by age and sex at local authority level
- Topic summaries
- Area profiles

**28<sup>th</sup> June 2022 with topic summaries and area profiles following in autumn winter 2022.**  
(NI first release 24<sup>th</sup> May 2022 with slower schedule for release. Scotland census a year later)

2

- Multivariate data
- Flexible table builder (ONS site)
- Small populations (short-term residents)

**Winter 2022 to early 2023**

3

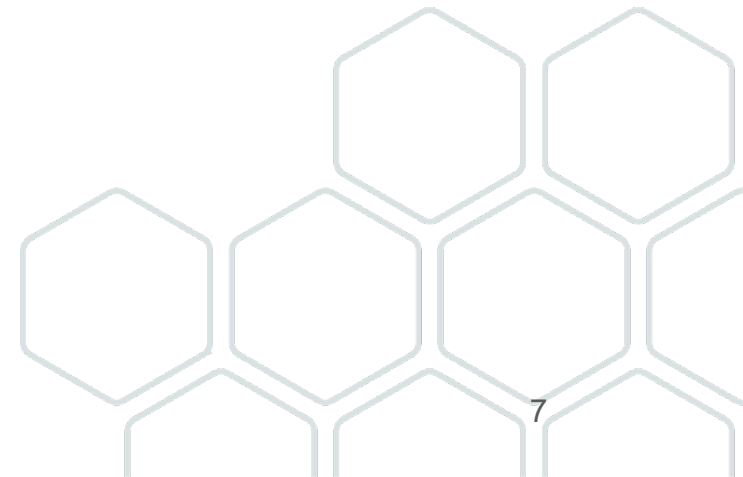
- Alternative population bases
- Small populations
- Flow data
- Microdata

**From spring 2023**  
**UK wide census release to follow all data being available**

# Phase 1 – topic summaries

Mainly univariate data released every two to three weeks throughout autumn and winter 2022

- demography and migration
- ethnic group, national identity, language, and religion
- health, disability, and unpaid care
- housing
- labour market and travel to work
- sexual orientation and gender identity
- education
- UK armed forces veterans



# Geographical data

Boundary data		
Administrative e.g. Local authority, Health	Electoral e.g. constituency, ward	Statistical areas built on output areas

ONS will provide boundaries administrative and electoral boundaries at time of release and statistical areas in July 2022 – will be available through UKDS

# Output area geography

Output area minimum 40 households and 100 residents, average target 125 households, maximum 250 households and 625 people

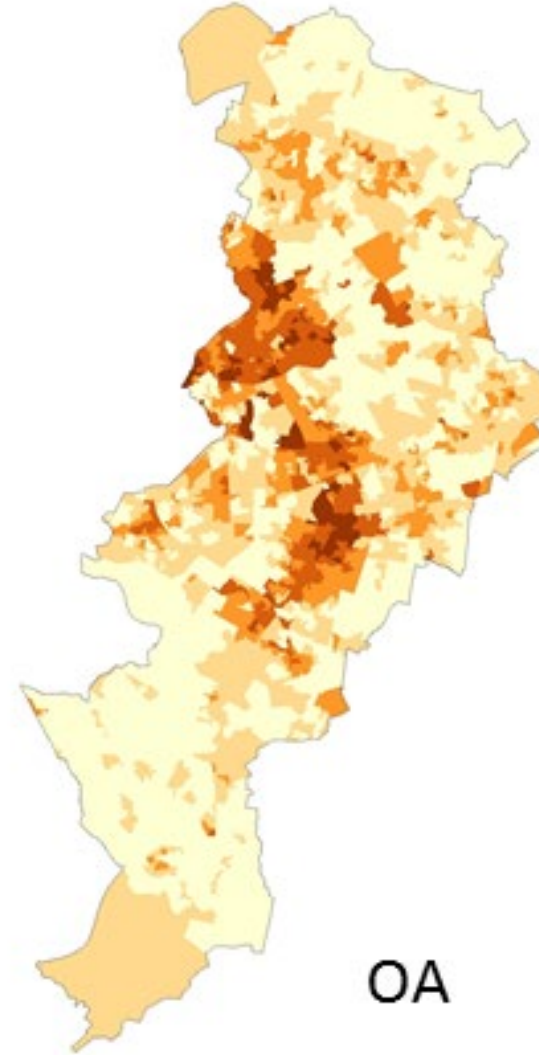
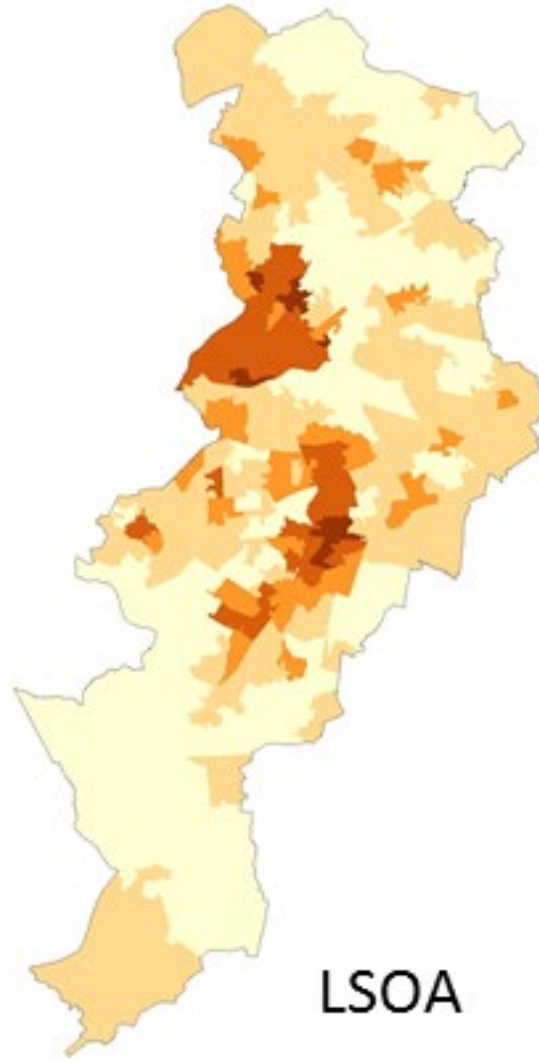
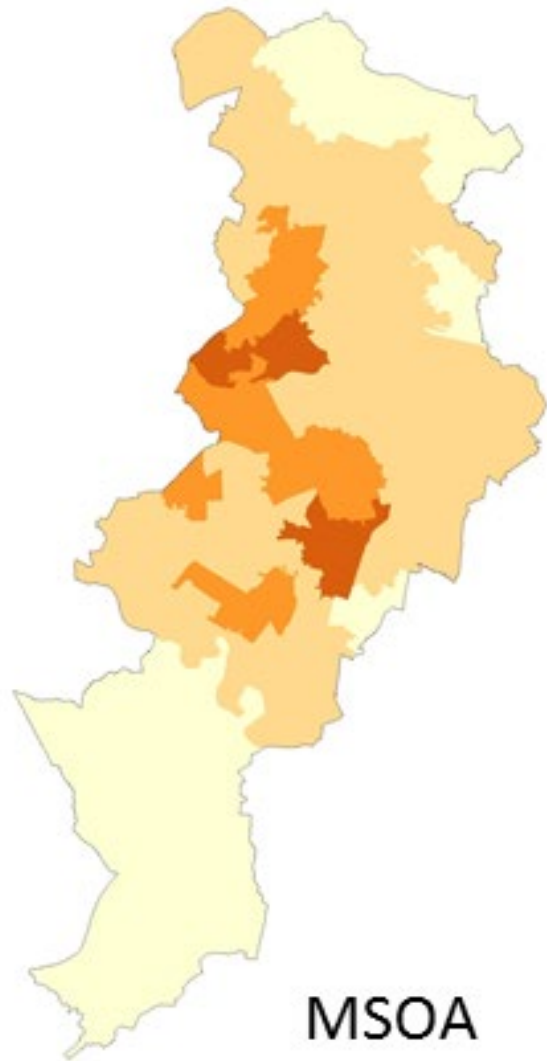
- introduced in 2001
- aim for more homogeneous population through matching characteristics of population
- but try to minimise changes

Built into larger super output areas

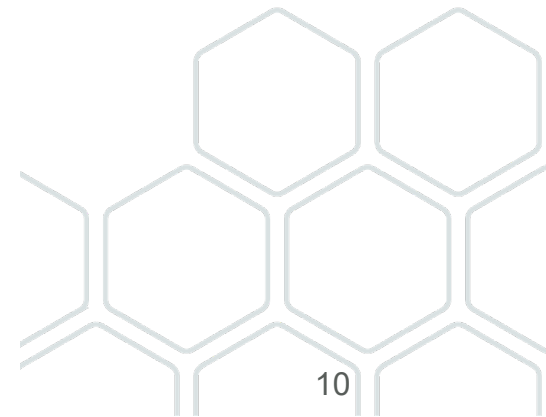
- lower level super-output areas (LSOAs) minimum 400 households and 1,000 people, maximum 1,200 households and 3,000 people – used in published statistics e.g. IMD, recorded crime
- Mid-level super output areas (MSOAs) minimum 2,000 households and 5,000 people, maximum 6,000 households and 15,000 people – used in published statistics e.g. educational attainment, Covid cases

All boundaries constrained within local authorities

# Output area specificity



Private rented sector  
in Manchester  
Source: 2011 census



## Phase 2 (winter 2022 to early 2023)

Short-term population (intend to stay in the UK less than 12 months)

Defined sets of tables including two or more variables at different geographical scales through ONS interface

Flexible table builder (incorporating statistical disclosure control)

The variable categories will vary between univariate and multivariate tables based on statistical disclosure control. This is likely to lead researchers to need to balance geographical scale and the level of detail available.

# Breakout session

- *What aspect(/s) of peoples' lives are you interested in?*
- *What area(/s) are you interested in and at what scale?*



# Skills analysis

Helping to define the skills you need for your research

# Skills matrix

Task	Skills needed
Identifying sources of data	Excel and understanding of variables
Downloading data	Web interface
Preparing data	Excel (formulae)
Analysing data	Excel / statistical software
Presenting data	Excel for tables and charts
	GIS for mapping
Spatial analysis	GeoDA (free software)
	R, STATA or GIS
Multivariate analysis	Statistical software
Combining other data	Data Management skills in Excel or statistical package

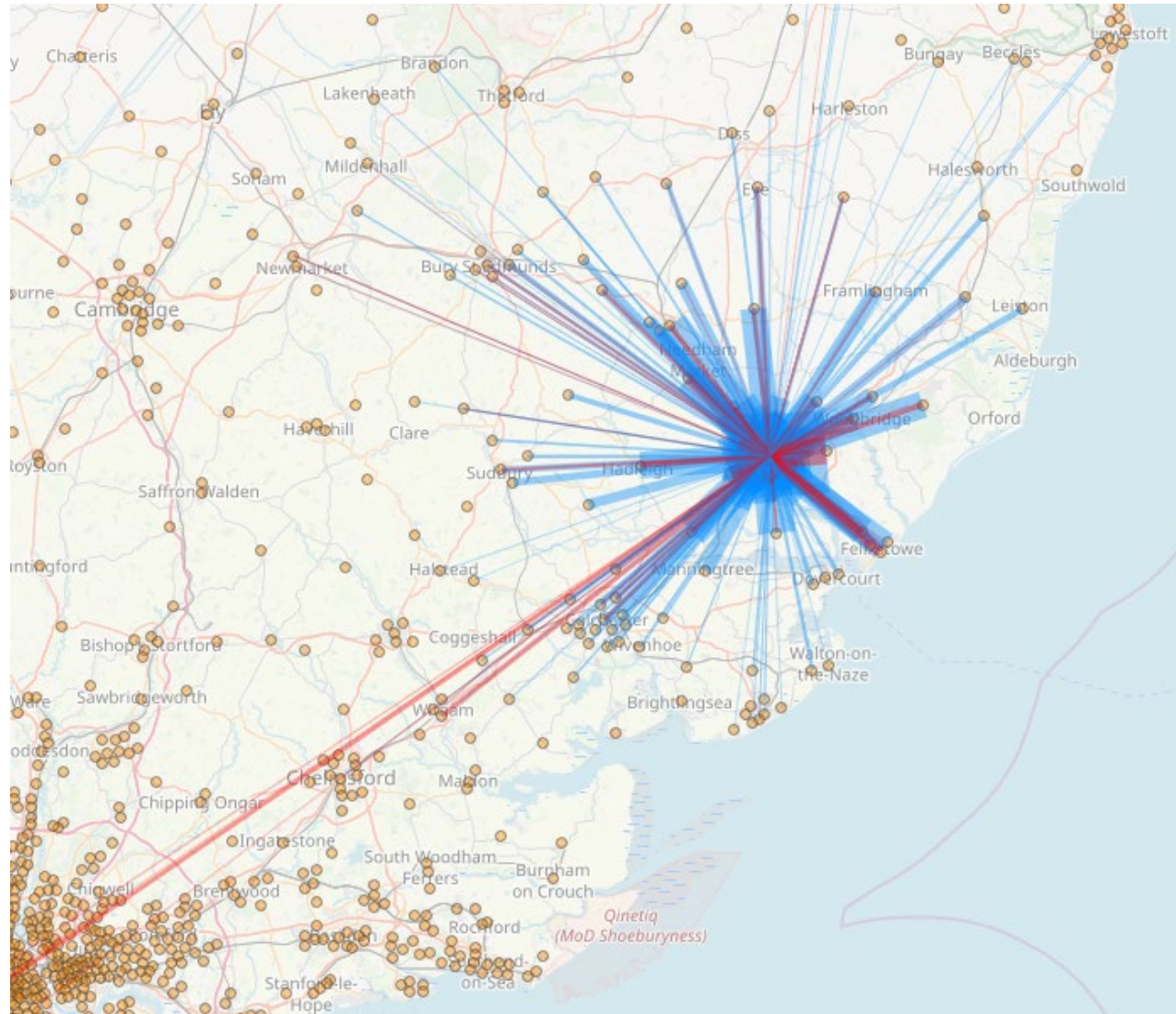
# ... and there is more

Phase 3 releases and some potential applications

## Phase 3 (from spring 2023)

- Alternative population bases (Workplace, Workday, Out-of-term, Second address)
- Small populations
- Detailed migration data
- Flow data
- Microdata

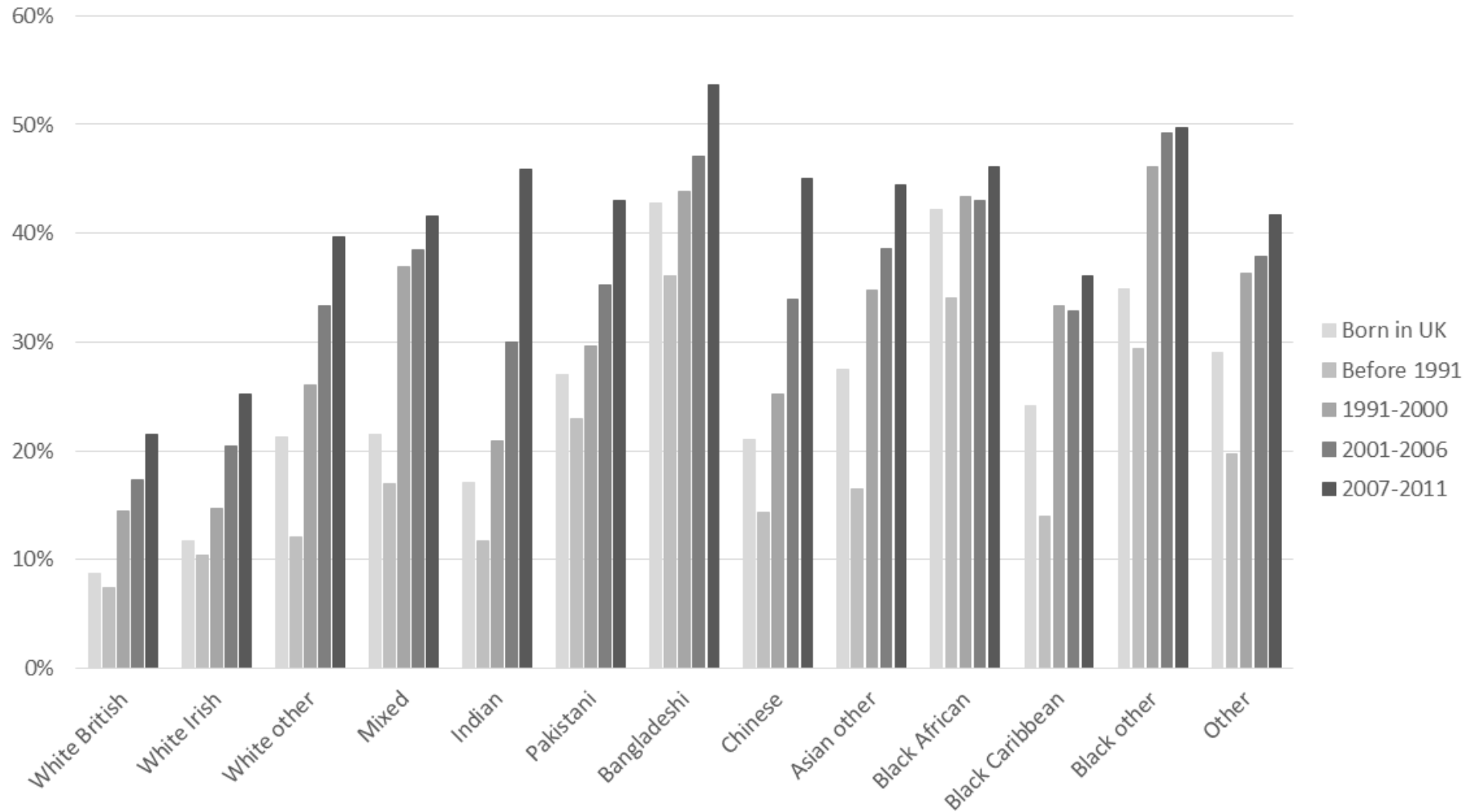
# Origin destination maps



Commuting to Ipswich  
*Source:* Healthy Suffolk  
website

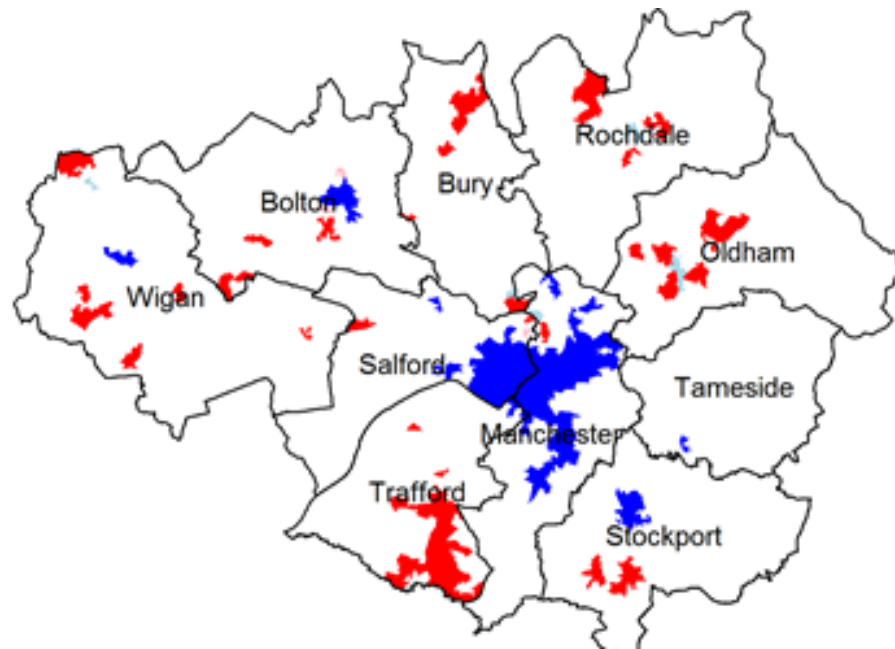
# Multivariate analysis

Percentage experiencing housing deprivation in 2011 by ethnicity and year of arrival in the UK

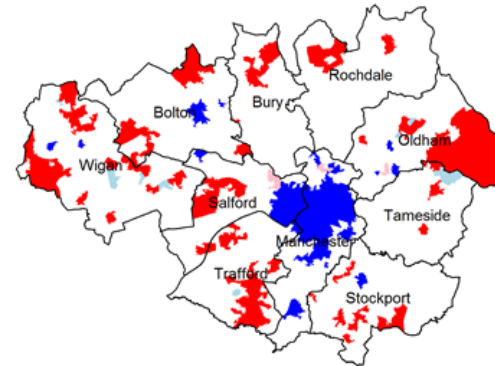


Source: census microdata 2011

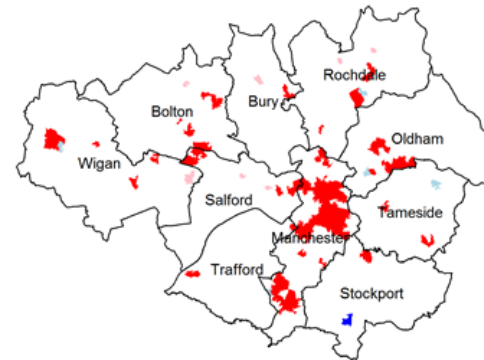
# Spatial clusters (couples with dependent children)



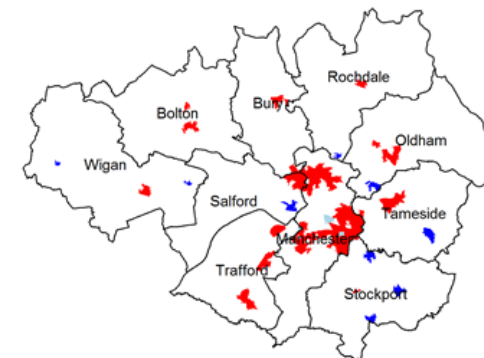
Owned



Social  
Rented

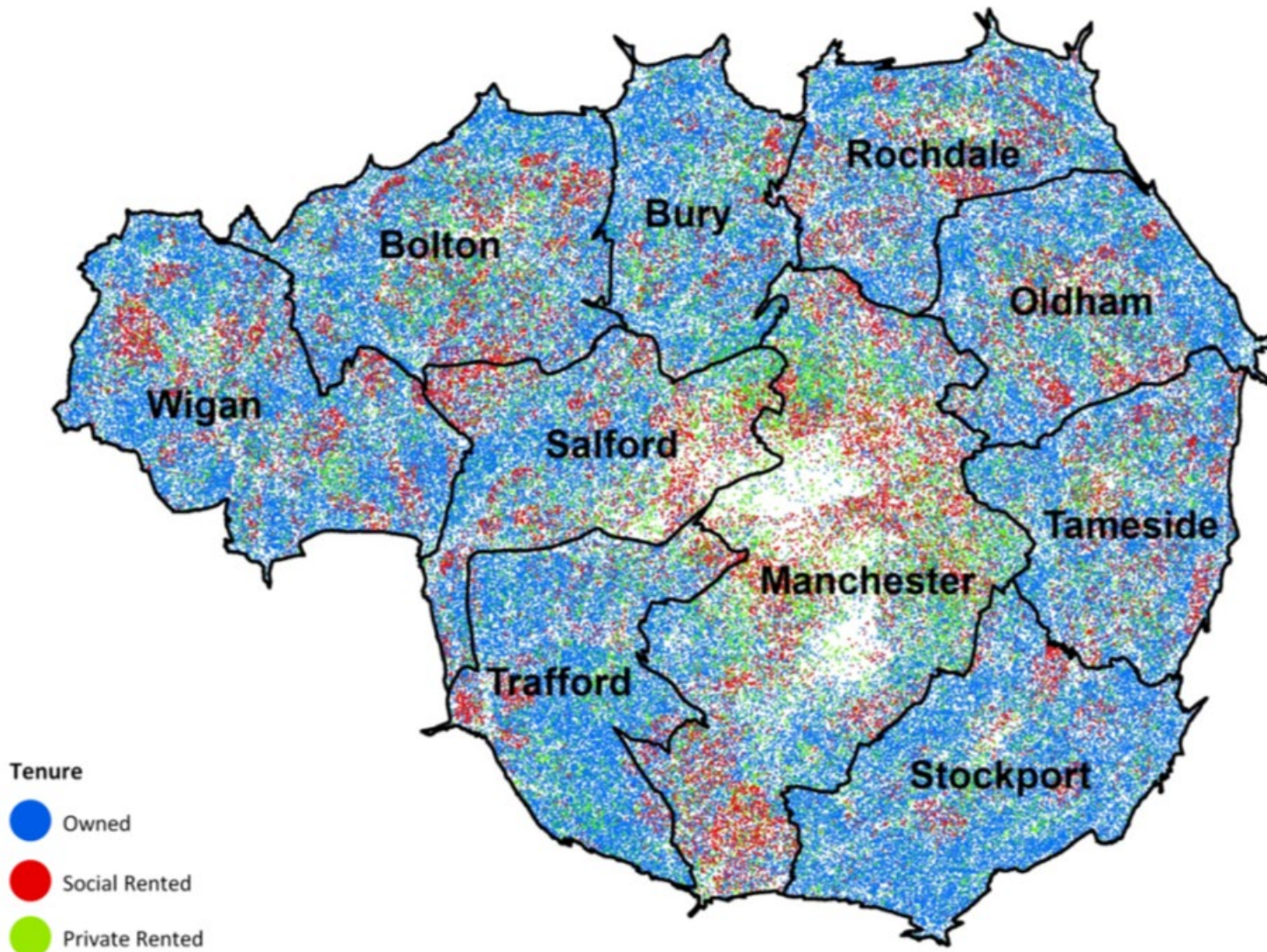


Private  
Rented



Greater Manchester

# Summarised by a dot-density map



Cartogram of couples with dependent children by tenure in Greater Manchester

# Change over time

Combining census data from multiple years

# Tables

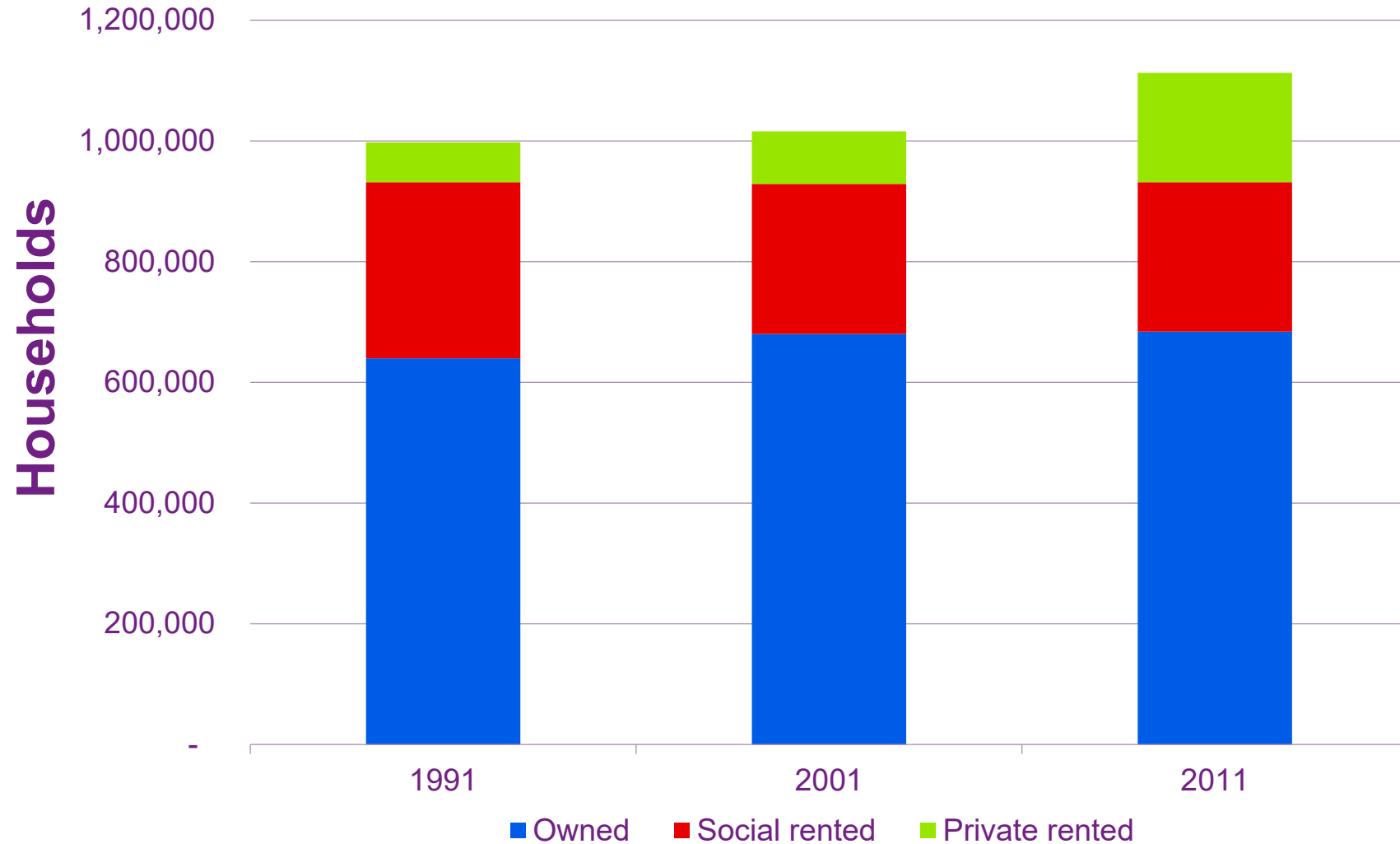
*Table 1: changes in the numbers and proportions of household by tenure and region from 2001 to 2011 in descending order of the number of PRS households in the region in 2011*

Households ('000s)	2001 (proportion by tenure)			2011 (proportion by tenure)			Change (%age 2001 to 2011)		
Region	Owned	Social	PRS	Owned	Social	PRS	Owned	Social	PRS
England	14,054 (69%)	3,940 (19%)	2,456 (12%)	14,149 (64%)	3,904 (18%)	4,011 (18%)	95 (1%)	-37 (-1%)	1,555 (63%)
London	1,705 (57%)	790 (26%)	521 (17%)	1,618 (50%)	786 (24%)	862 (26%)	-86 (-5%)	-4 (-1%)	341 (65%)
South East	2,431 (74%)	459 (14%)	397 (12%)	2,444 (69%)	487 (14%)	624 (18%)	12 (0%)	29 (6%)	227 (57%)
North West	1,948 (69%)	565 (20%)	300 (11%)	1,957 (65%)	550 (18%)	502 (17%)	9 (0%)	-14 (-2%)	202 (67%)
South West	1,524 (73%)	282 (14%)	280 (13%)	1,544 (68%)	302 (13%)	419 (18%)	20 (1%)	19 (7%)	139 (50%)
East	1,622 (73%)	369 (17%)	240 (11%)	1,656 (68%)	380 (16%)	387 (16%)	33 (2%)	12 (3%)	147 (61%)
Yorks and Humber	1,396 (68%)	434 (21%)	234 (11%)	1,435 (65%)	402 (18%)	386 (17%)	39 (3%)	-31 (-7%)	152 (65%)
West Midlands	1,498 (70%)	444 (21%)	212 (10%)	1,504 (66%)	435 (19%)	355 (15%)	6 (0%)	-8 (-2%)	143 (67%)
East Midlands	1,251 (72%)	303 (17%)	178 (10%)	1,287 (68%)	300 (16%)	308 (16%)	37 (3%)	-3 (-1%)	129 (72%)
North East	678 (64%)	295 (28%)	93 (9%)	703 (62%)	260 (23%)	168 (15%)	24 (4%)	-35 (-12%)	75 (81%)

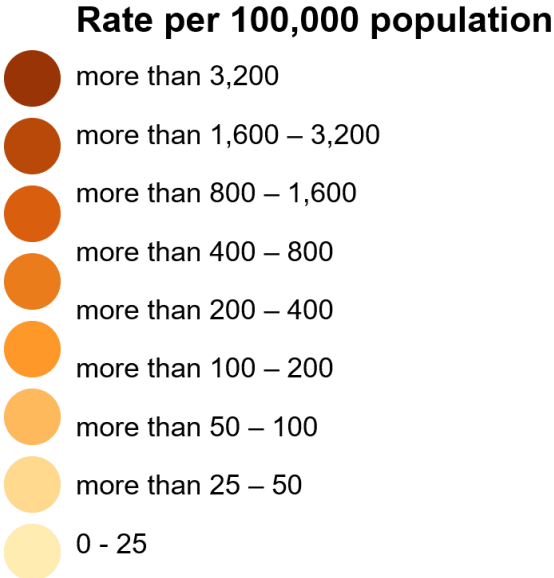
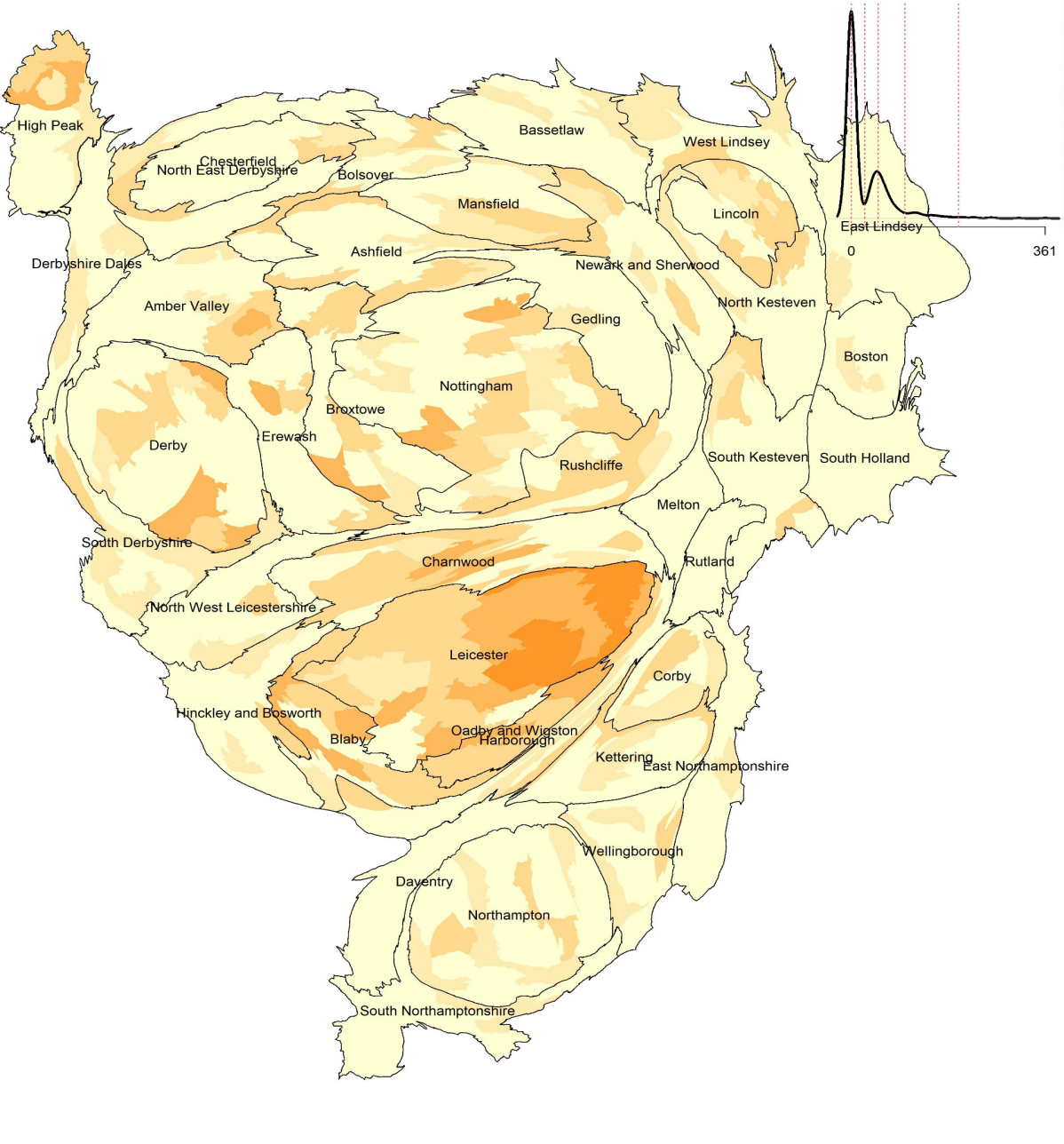
Sources: Census 2001 standard table KS18; Census 2011 standard table KS402EW

# Charts

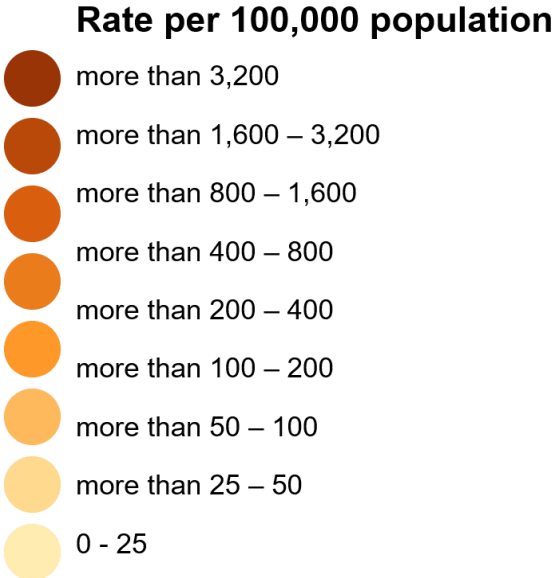
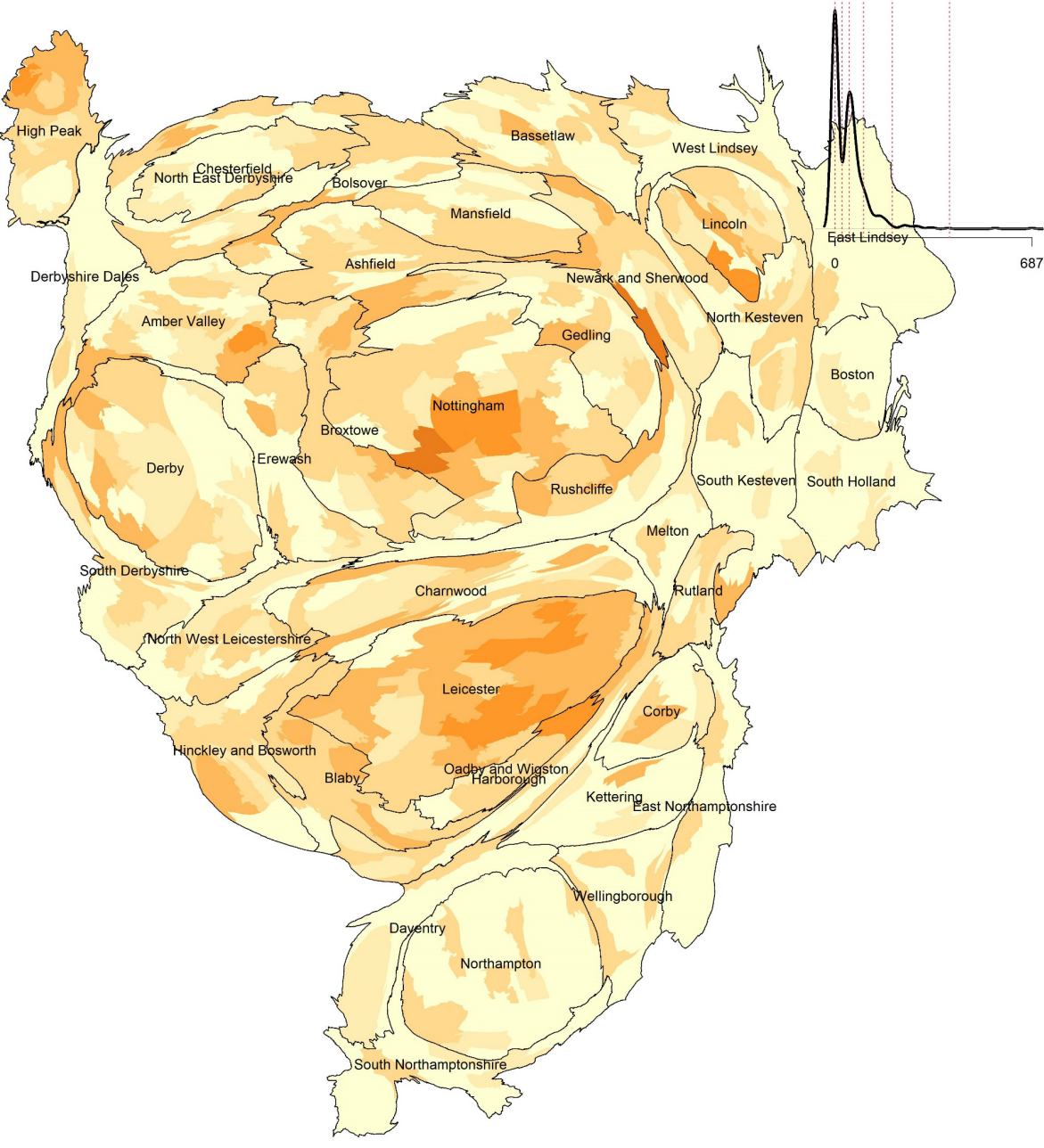
Figure: changes in household tenure in Greater Manchester from 1991, 2001 and 2011 census data



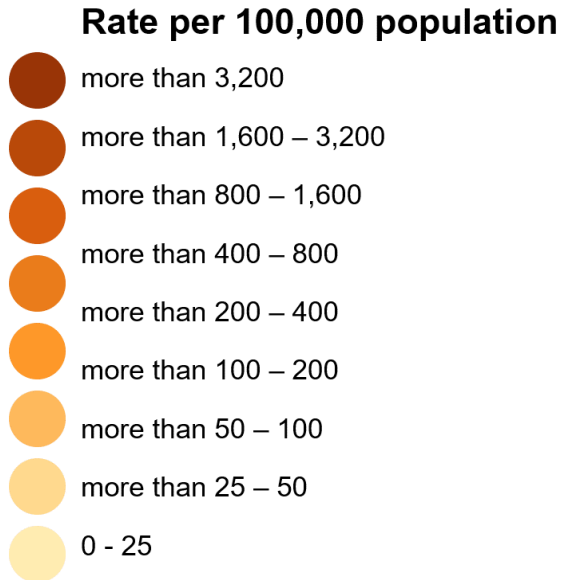
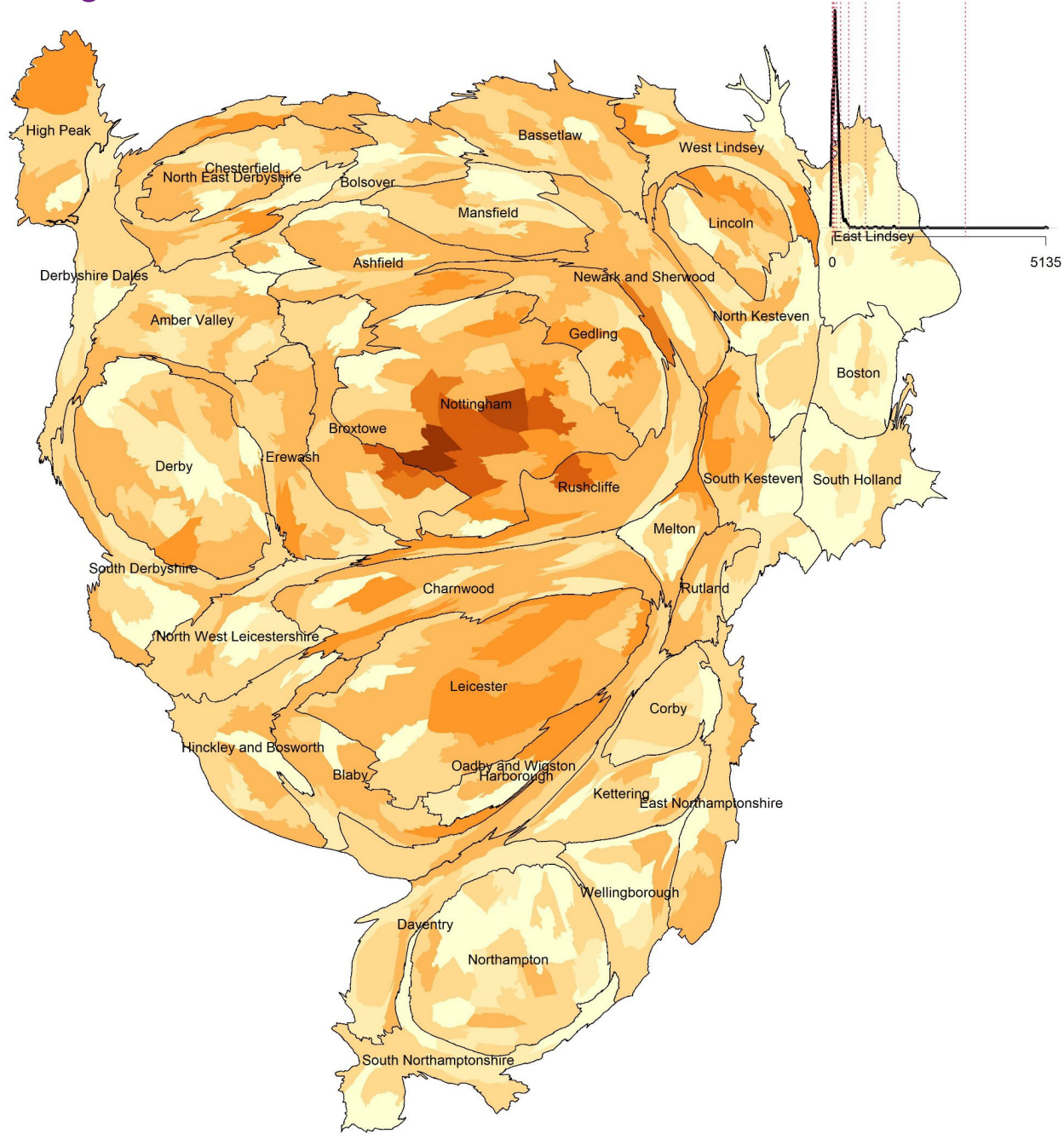
Cartogram of Covid cases in East Midlands 21<sup>st</sup> September 2020



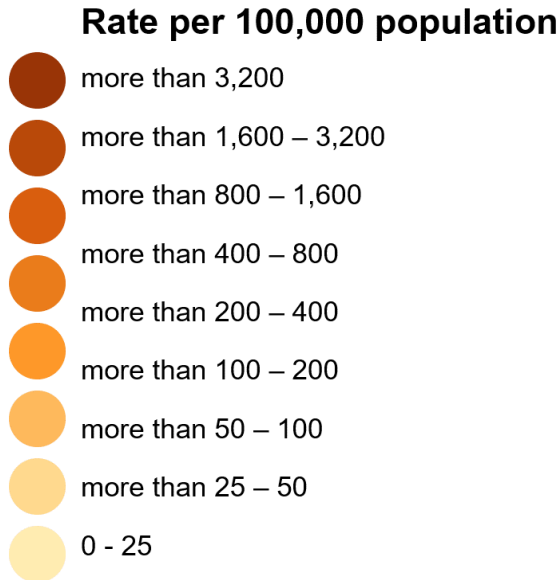
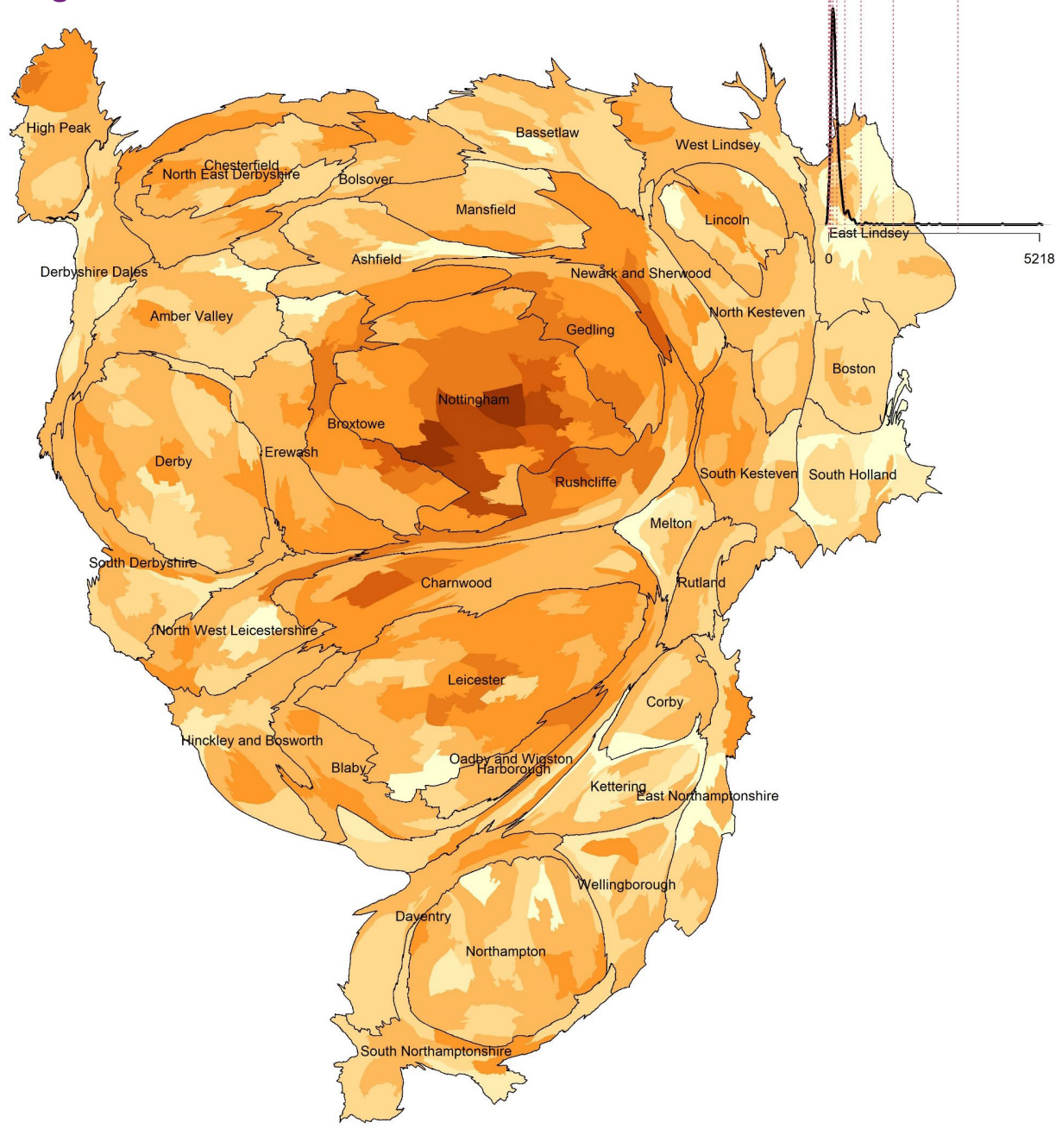
Cartogram of Covid cases in East Midlands 28<sup>th</sup> September 2020



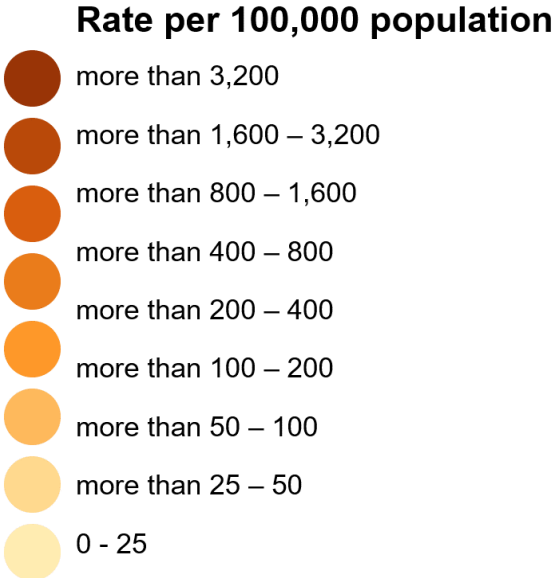
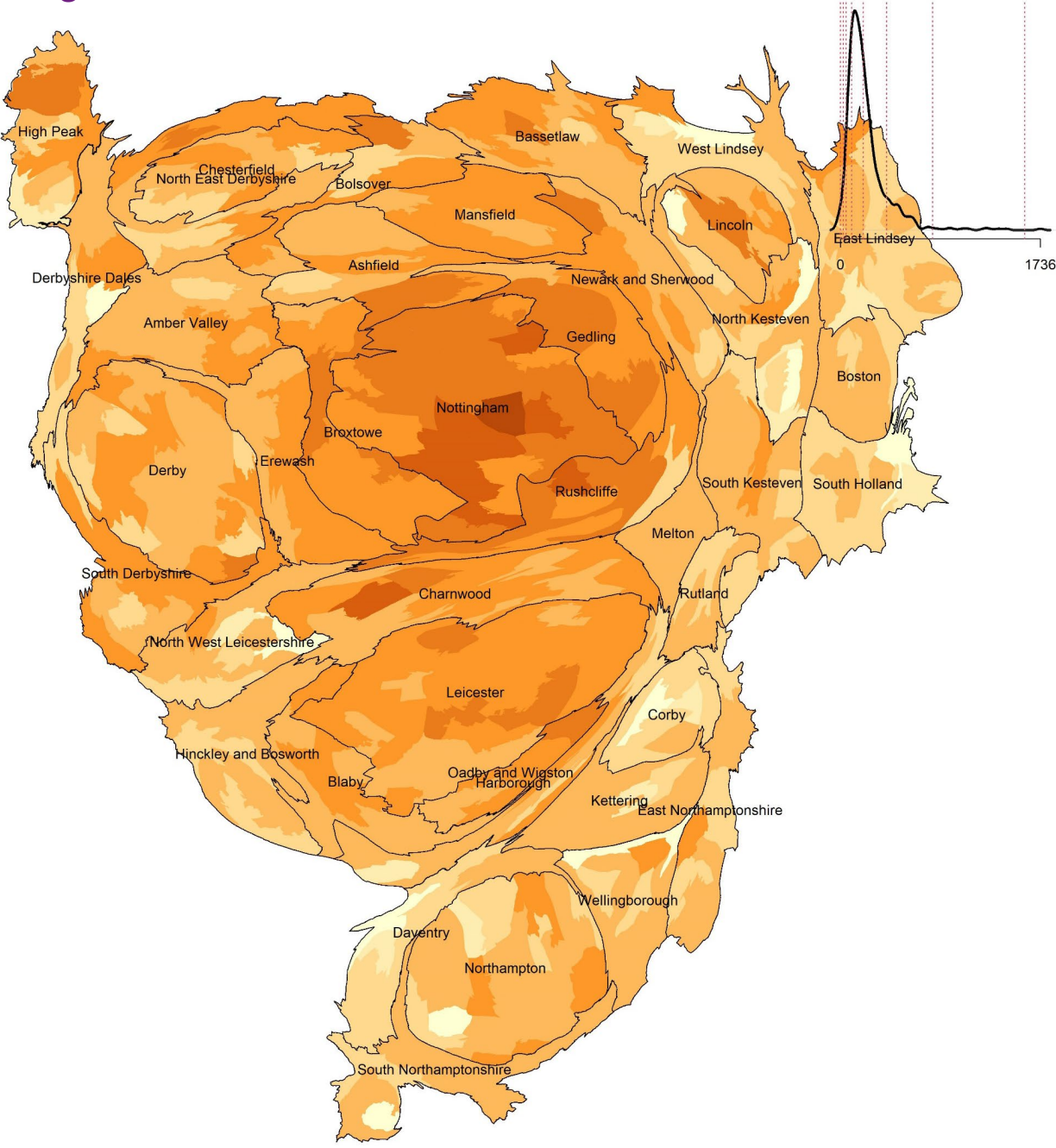
Cartogram of Covid cases in East Midlands 4<sup>th</sup> October 2020



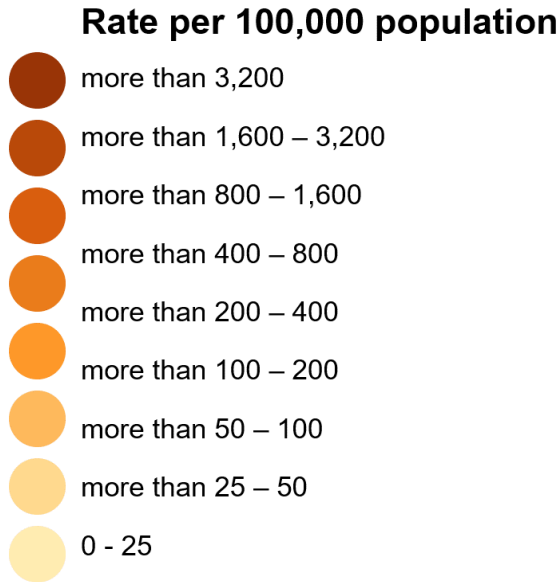
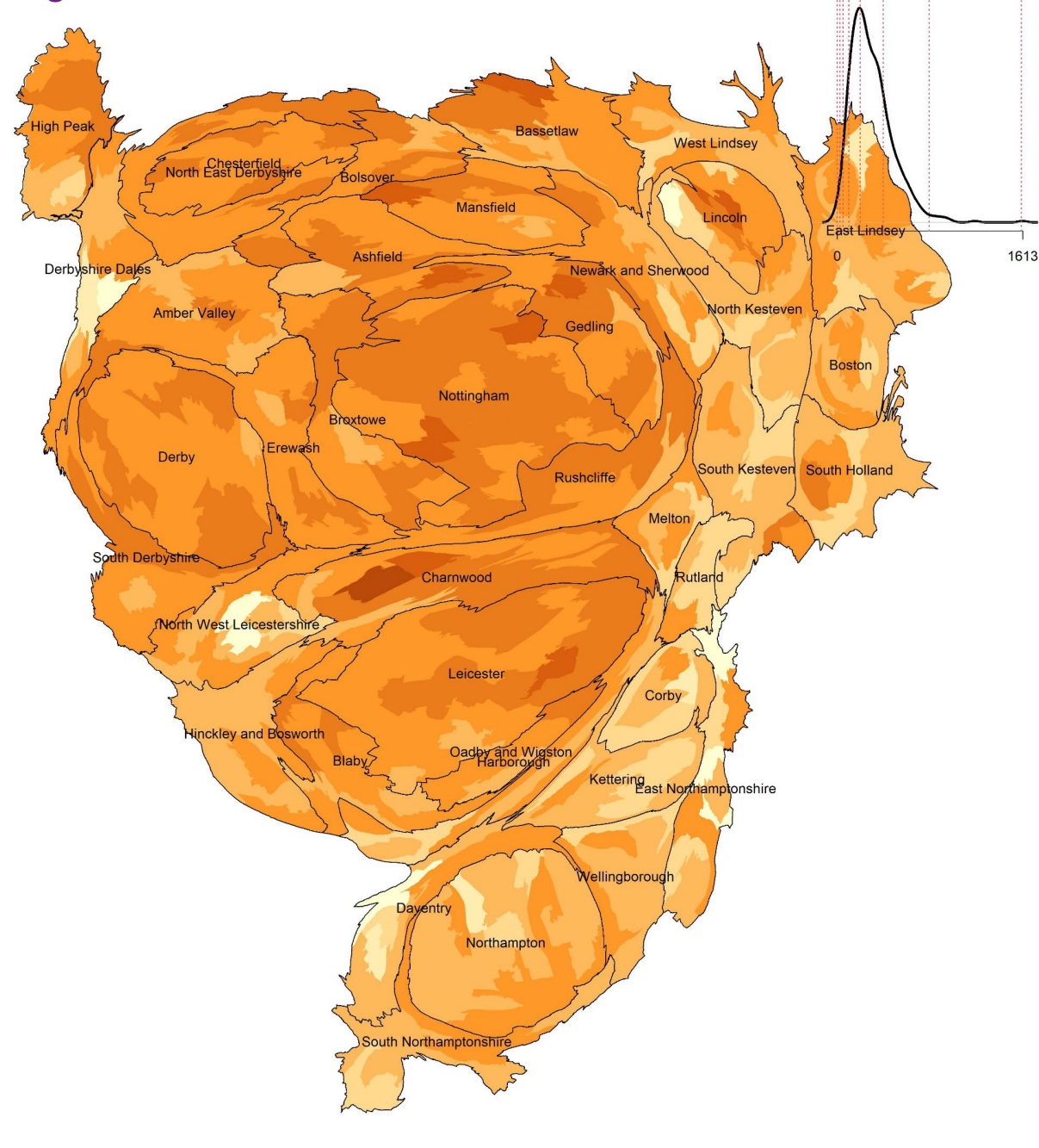
Cartogram of Covid cases in East Midlands 11<sup>th</sup> October 2020



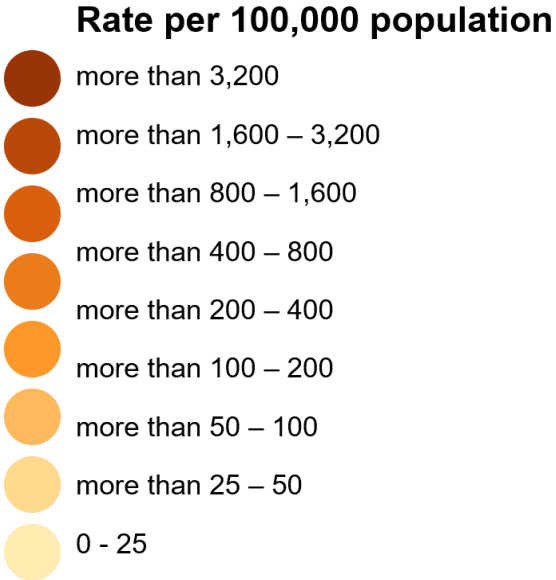
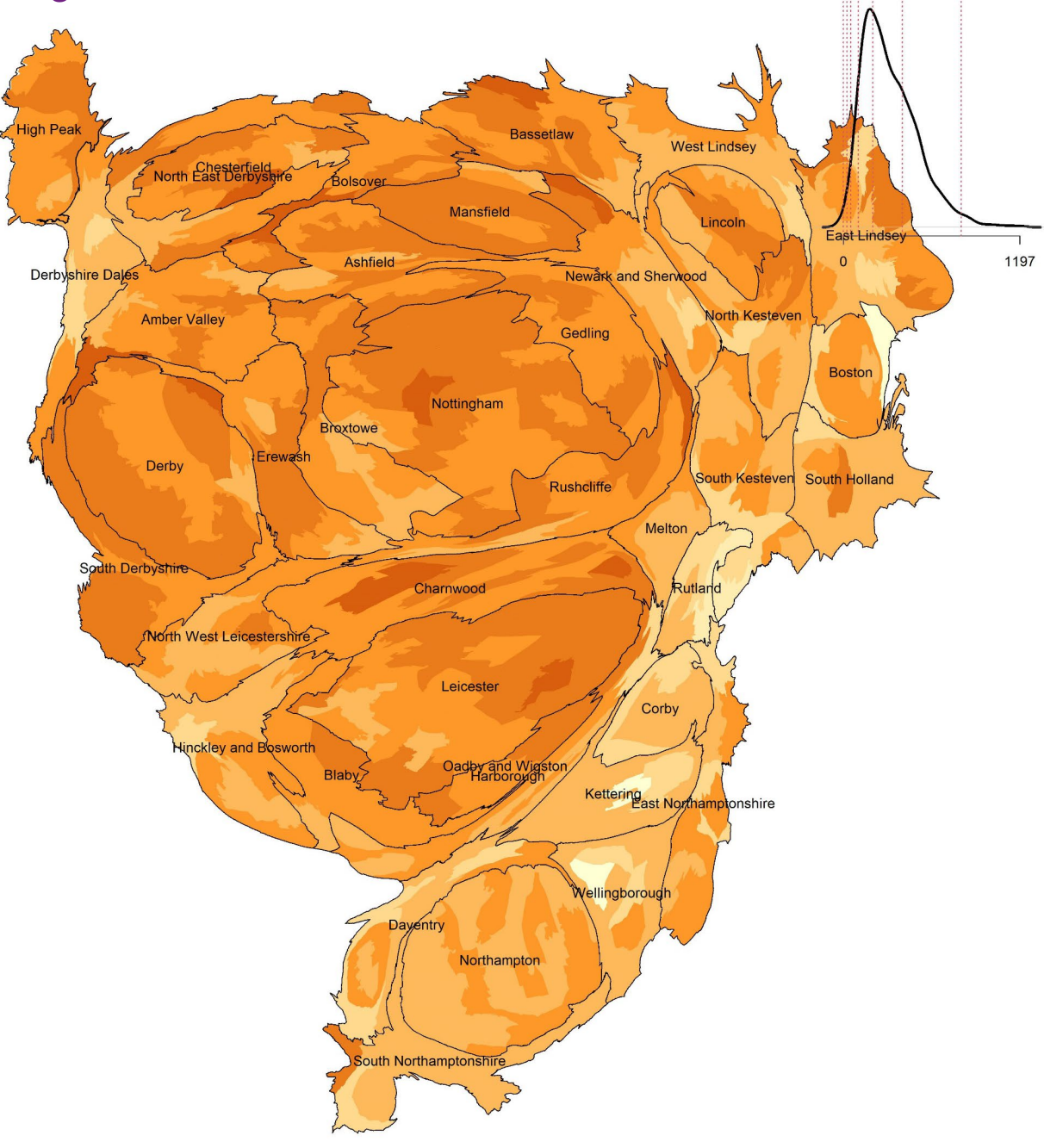
Cartogram of Covid cases in East Midlands 18<sup>th</sup> October 2020



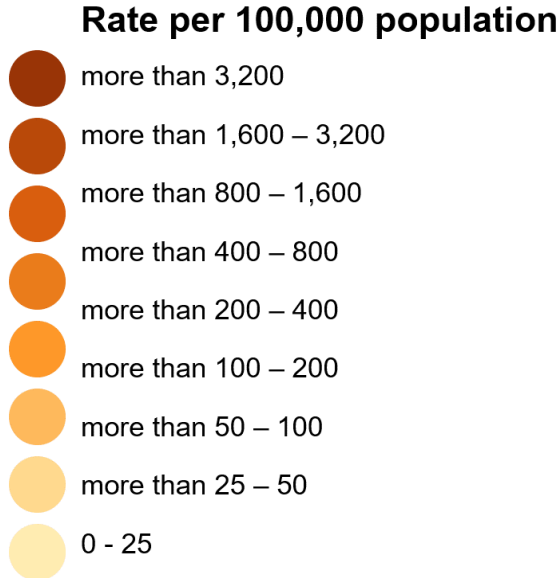
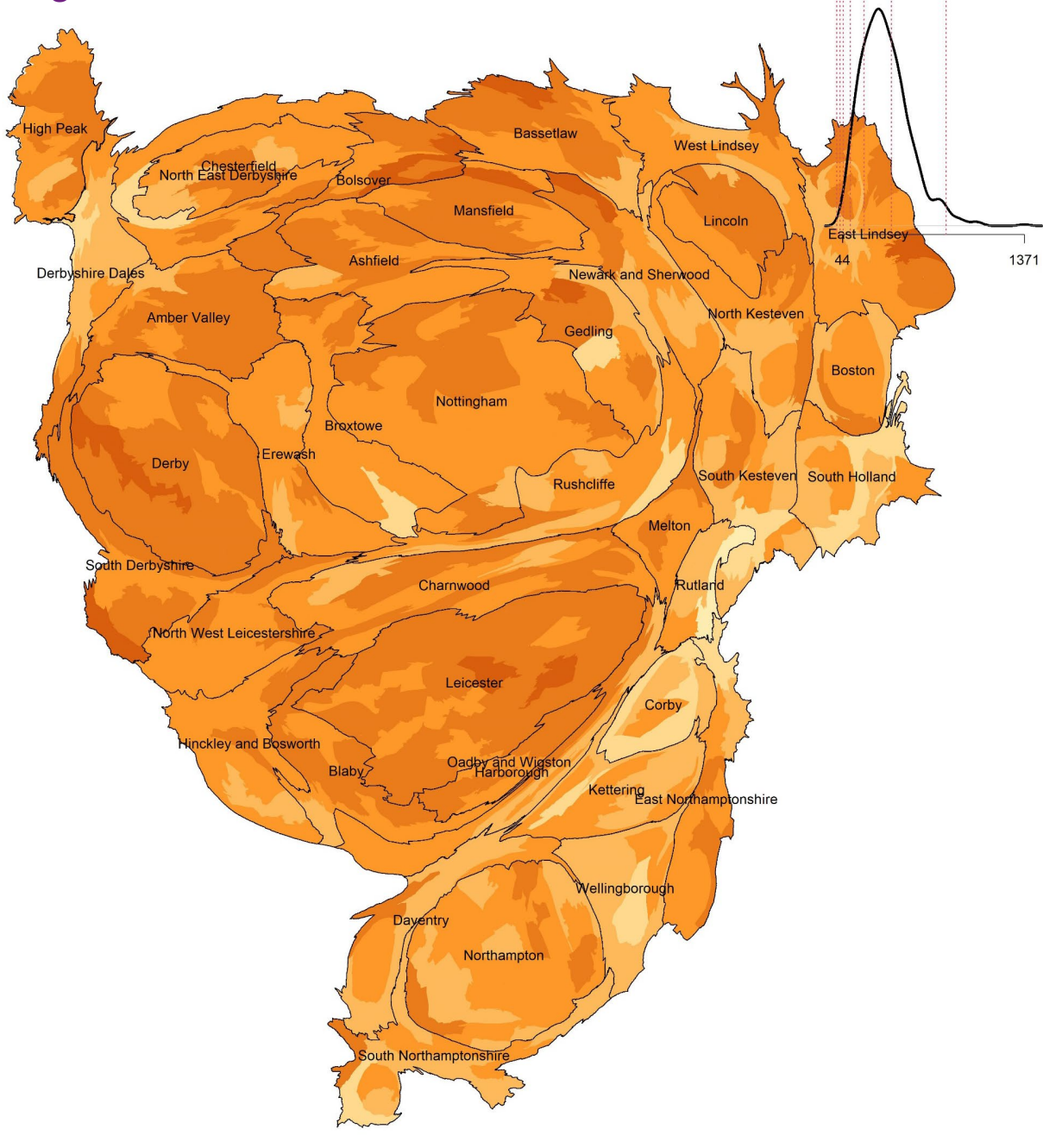
Cartogram of Covid cases in East Midlands 25<sup>th</sup> October 2020



Cartogram of Covid cases in East Midlands 1<sup>st</sup> November 2020



Cartogram of Covid cases in East Midlands 8<sup>th</sup> November 2020



# Potential issues to consider

# Issues to consider

- Impact of Covid-19 on e.g. employment, place of residence, work and education: – ONS report will include some consideration in first release with more detailed report to follow
- Learning from the quality assurance process with local authorities – some information will be published
- Coverage and statistical imputation
- Changing geography
- General trust and unwillingness to disclose some characteristics



# Thank you.

Nigel de Noronha

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