

Census 2011: new opportunities, analyses, and future options

David Martin

Presentation overview

- 2011 Census overview
 - Quality assurance
 - New (Open) Data and interfaces
- New opportunities
 - New patterns, new dynamics
 - Workplace geographies
- Future options – Beyond 2011

2011 census overview

- Essentially conventional census
- New questions – mainly relating to residence and identity
- Methodological development
 - mail out/mail back and online channel
 - QA relative to administrative sources - successful outcome
- Geographical stability – 97.4% OA boundaries unchanged
- New additional workplace geography



Household Questionnaire England

Office for
National Statistics



Complete online

www.census.gov.uk
Your personal internet access code is:

OR fill in this paper questionnaire and post it back using the pre-paid envelope supplied.

If your address is incorrect or missing, enter your correct address here:

															Postcode		

Declaration

This questionnaire has been completed to the best of my knowledge and belief.

Signature

Date	Telephone number
<input type="text"/>	<input type="text"/>

We may contact you if we need to collect missing information.

If you have lost your envelope, please return to:
FREEPOST 2011 Census, Processing Centre, UK

Return to:
FREEPOST 2011 Census,
Processing Centre, UK

A message to everyone - act now

Everyone should be included in the census - all people, households and overnight visitors.

It is used to help plan and fund services for your community - services like transport, education and health.

Please complete your census questionnaire on 27 March 2011, or as soon as possible afterwards. You can fill it in online or on paper.

Taking part in the census is very important and it's also compulsory. You could face a fine if you don't participate or if you supply false information.

Your personal information is protected by law. Census information is kept confidential for 100 years.

So help tomorrow take shape and be part of the 2011 Census.

J. N. Matheson

Jill Matheson
National Statistician

Where can you get help?

- www.census.gov.uk
- Census helpline 0300 0201 101
- Text Relay 18001 0300 0201 160

Help is available in large print and Braille



101001

H1



H1 - Household Questionnaire - England

[Help and information \(opens in new window\)](#)

Your progress

- Household questions
- H1 - H2
- H3
- H4 - H5
- H6
- H7 - H8
- H9 - H10
- H11
- H12
- H13
- H14

Individual questions

Visitor questions

Submission

Household questions

[Save and come back later](#)

H7 What type of accommodation is this? [Quick help +](#)

A whole house or bungalow that is:

- detached
- semi-detached
- terraced (including end-terrace)

A flat, maisonette or apartment that is:

- in a purpose-built block of flats or tenement
- part of a converted or shared house (including bedsits)
- in a commercial building (for example, in an office building, hotel, or over a shop)

A mobile or temporary structure:

- a caravan or other mobile or temporary structure

H8 Is this household's accommodation self-contained? [Quick help +](#)

This means that all the rooms, including the kitchen, bathroom and toilet, are behind a door that only this household can use

Yes, all the rooms are behind a door that only this household can use

No

[Back](#)

[Save and next](#)

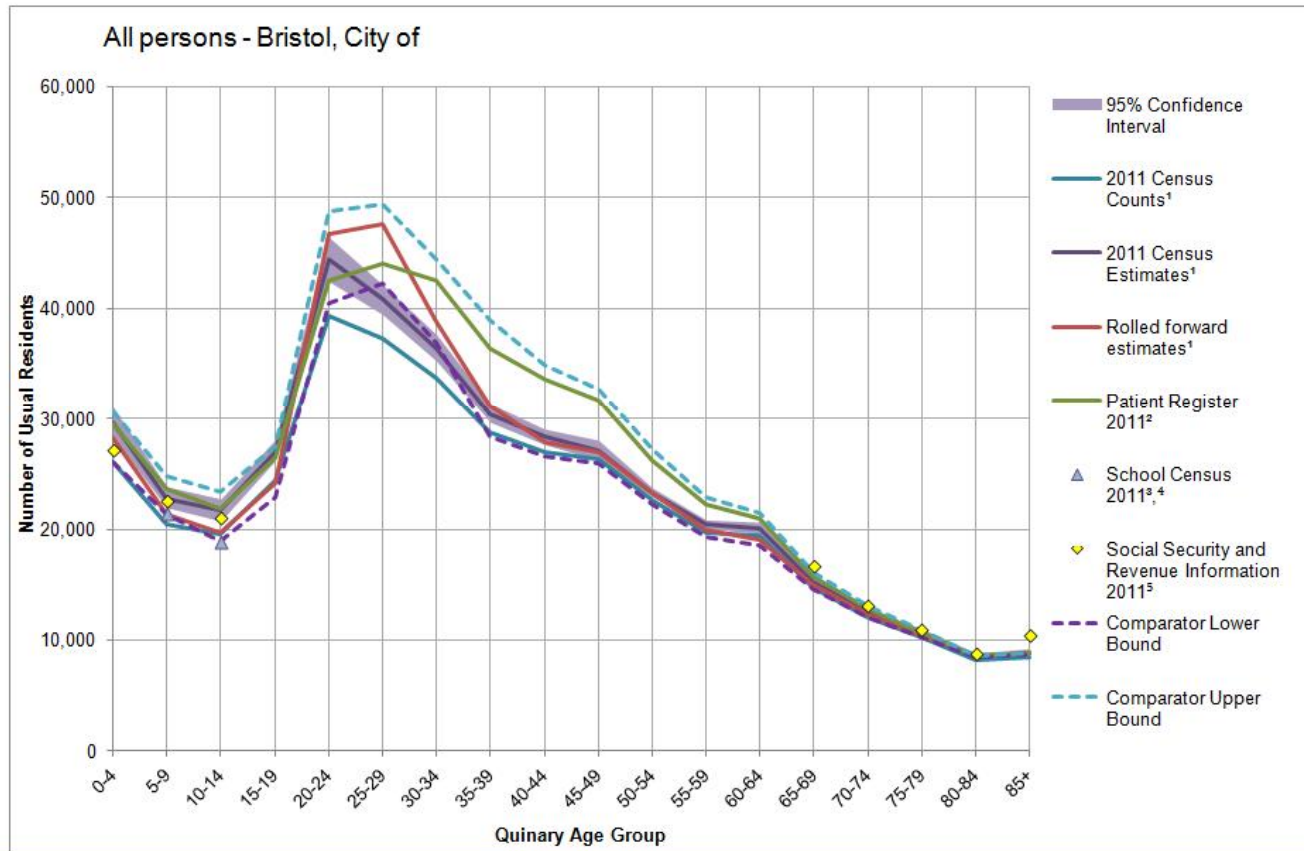
Secure Search



Photos: David Martin

Descriptive metadata for tables in this pack is provided on previous pages - Descriptive metadata for terms used -

2011 Census QA Pack - Bristol, City of



2011 Census QA Pack - Bristol, City of

Males - Bristol, City of

Return to top of sheet

Messages for census users

- Huge effort has gone into producing a nationally consistent design and evaluation of both the process and the results
- Consistency of approach – triangulation from many different perspectives, hence assured that very close to true position: (but exact answers unknown/unknowable!)
- QA process has focused on LAD level demographics: much greater uncertainty re. smaller areas; socioeconomic characteristics; statistical disclosure control to be applied
- 2011 likely to be seen as best recent census
- Open Data – multiple delivery channels

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A unified point of access to data from ESDS, Census Programme, Secure Data Service and others



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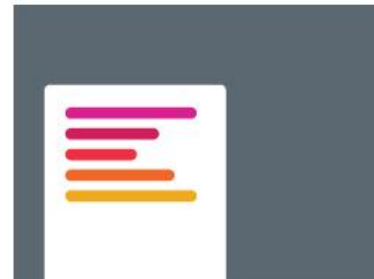
LATEST TWEETS

UKDataService RT @UKRSAvitae: 2-day course on moving into research manager positions (open to all UK research staff): <http://t.co/nKZ78M7AjU>

UKDataService Lots of @UKDataService and @UKDataArchive staff presenting at #iasist2013 today. Good luck everyone! <http://t.co/7QkNChEIo>

UKDataService Researchers: Do you use @UKDataService data? Publicise your work - submit a case

LATEST NEWS



Book now for workshop on using large-scale survey data for research

Japanese publication of our research data management guide

Call for papers: Family Resources Survey user meeting

Call for papers: Health surveys user meeting

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[Videos](#) - hear from data professionals including the Office for National Statistics and the Royal Statistical Society

[Case studies](#) - search our library of over 100 articles demonstrating how data are being used in research and teaching

QUICK ACCESS TO

Key data

Census Support

Information for new users

Frequently asked questions

Census geography: automated zone design

- Procedure used for output area creation in 2001 and maintenance in 2011
- Unit postcodes building blocks built from merged and clipped Thiessen polygons around addresses
- Iterative recombination of building blocks
- Assessment of each configuration against a set of objective functions
- Improvements retained at each iteration

Automated zone design

Automated generation of census outputs areas containing 125 households; trade-off between multiple design criteria



Towards 2011 output geographies: Exploring the need for, and challenges involved in, maintenance of the 2001 output geographies

Samantha Cockings, Andrew Harfoot,
Duncan Hornby
University of Southampton

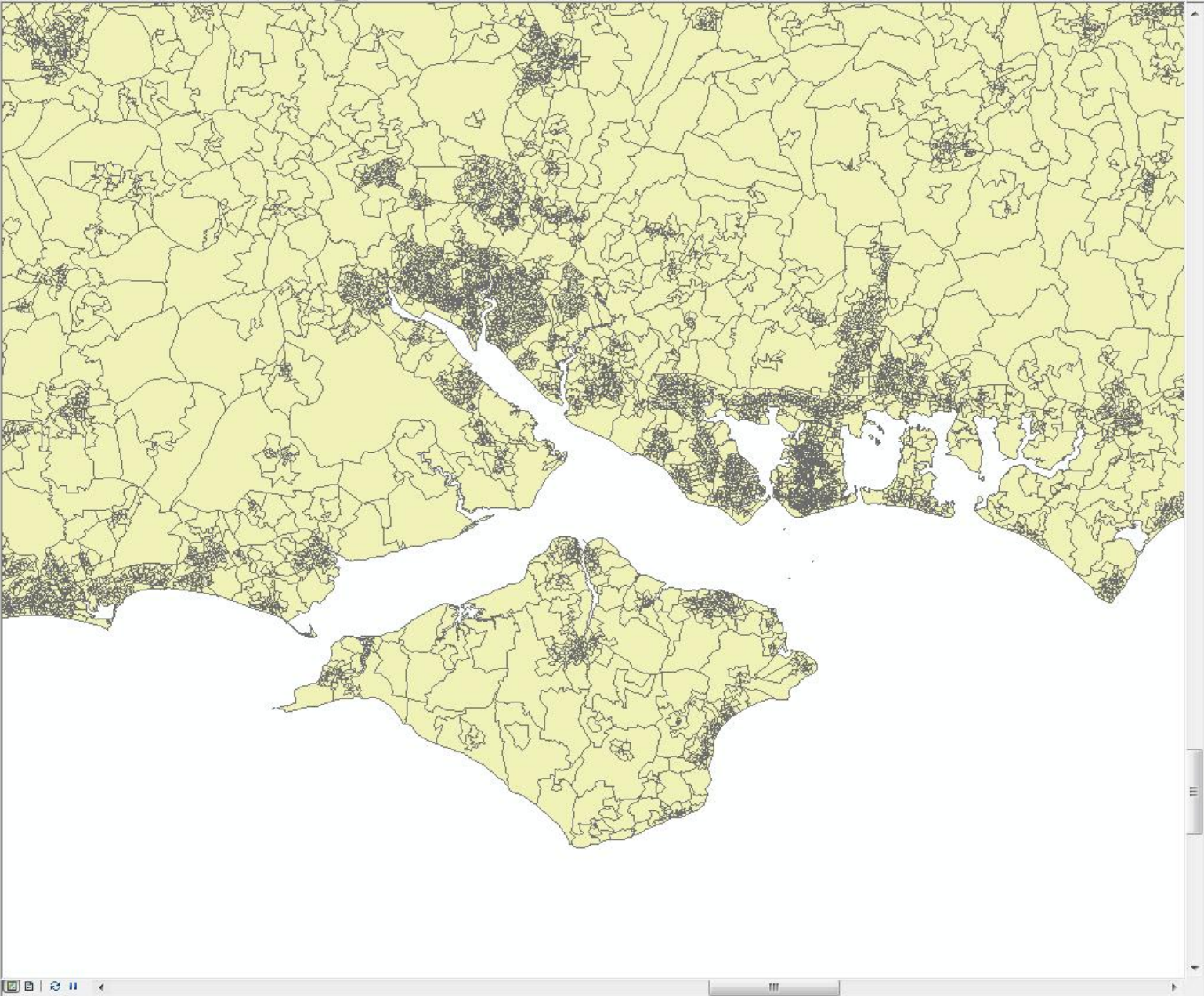
This article describes and presents early results from the ESRC-funded Census 2011Geog project, which aims to develop and evaluate automated procedures to maintain (split, merge or re-design) the 2001

Introduction

The 2001 Census output geographies for England and Wales were designed to be an optimised representation of the population distribution and socio-economic characteristics at that time. By the next Census in 2011 there will have been changes in the size and composition of

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- Layers
 - J:\Geography Research\Private
 - England_0a_2011_gen_clip

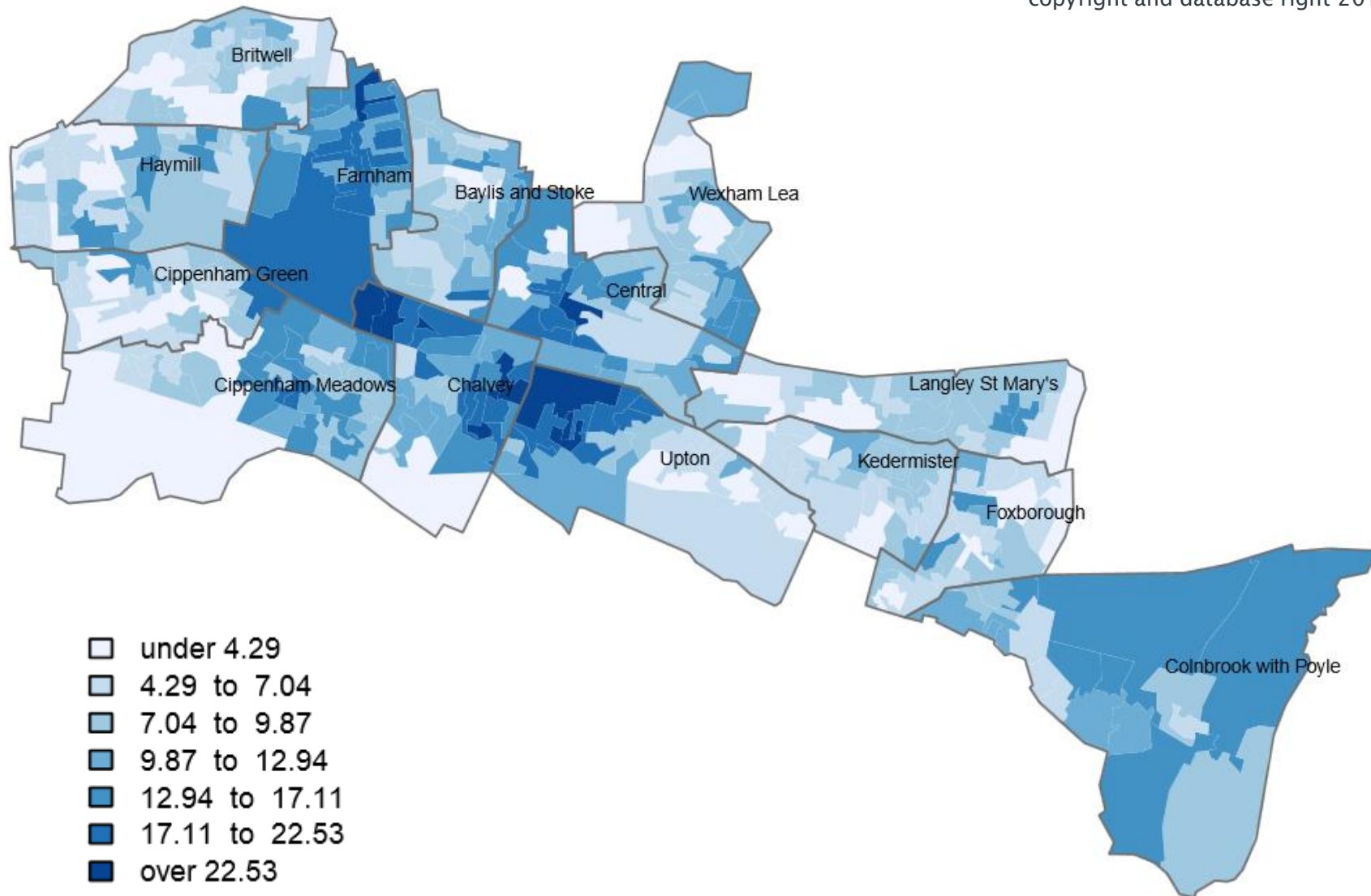


Catalog Search

Slough: Ethnic Group White: Other White

Map created by Alex Singleton
(<http://www.alex-singleton.com>)

Contains National Statistics data © Crown
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Contains Ordnance Survey data © Crown
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Median age: the East End getting younger

You are here: Home > Interactive > Census map 1.4

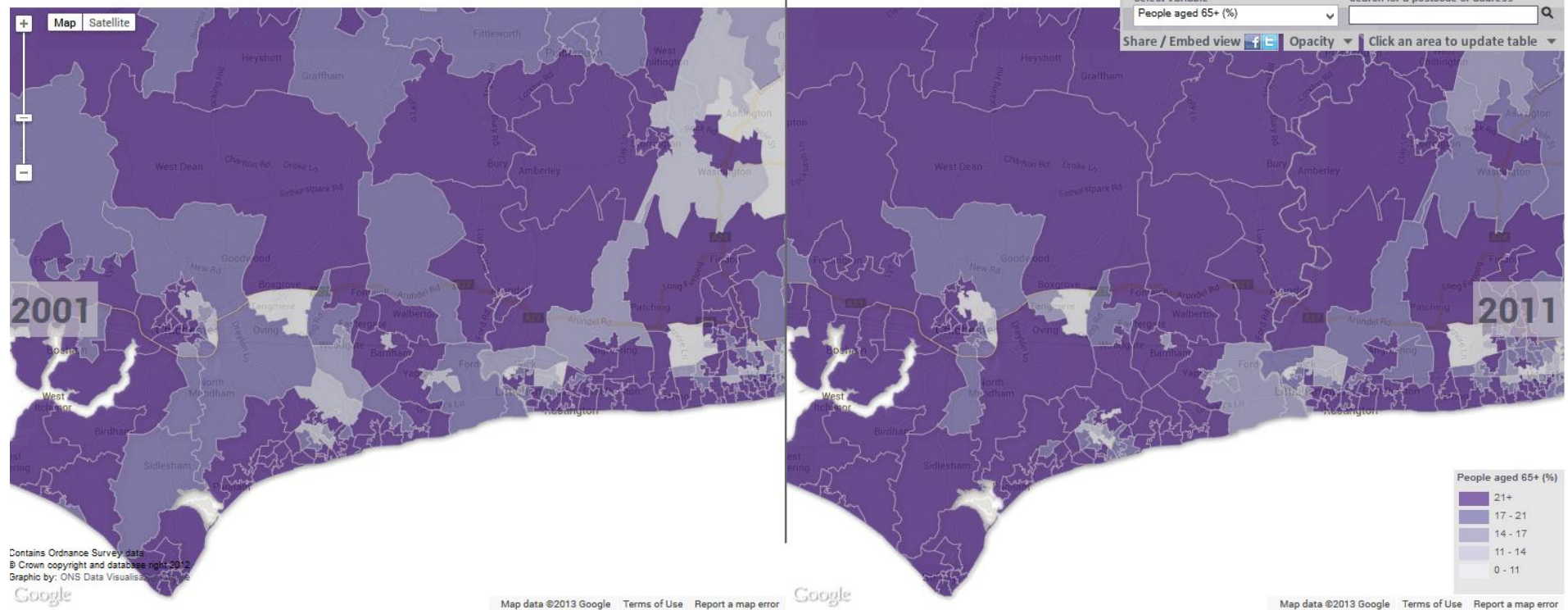
Print friendly

2001 vs 2011 Census - Population and Age



The ageing outer South East

2001 vs 2011 Census - Population and Age



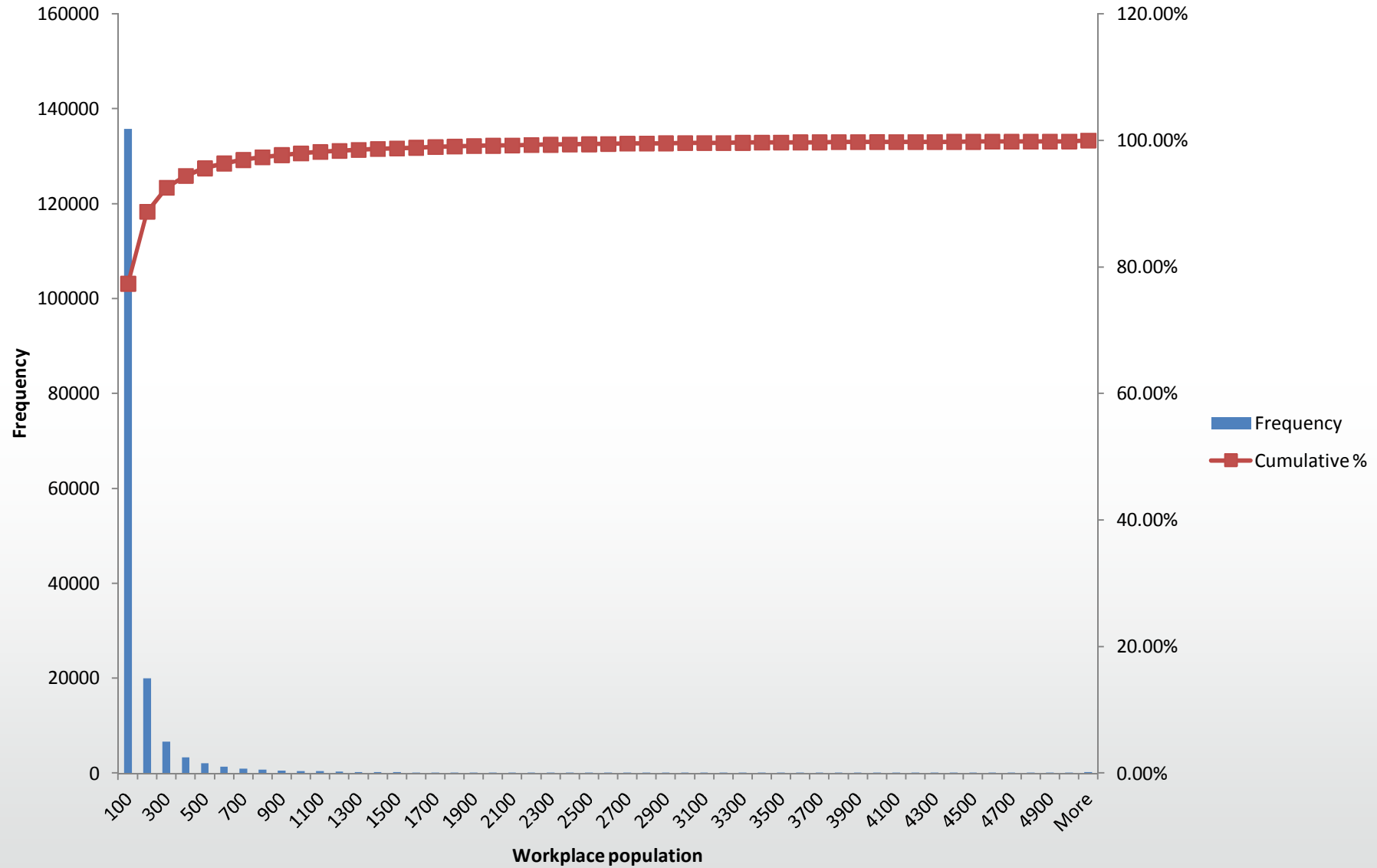


Photos: David Martin

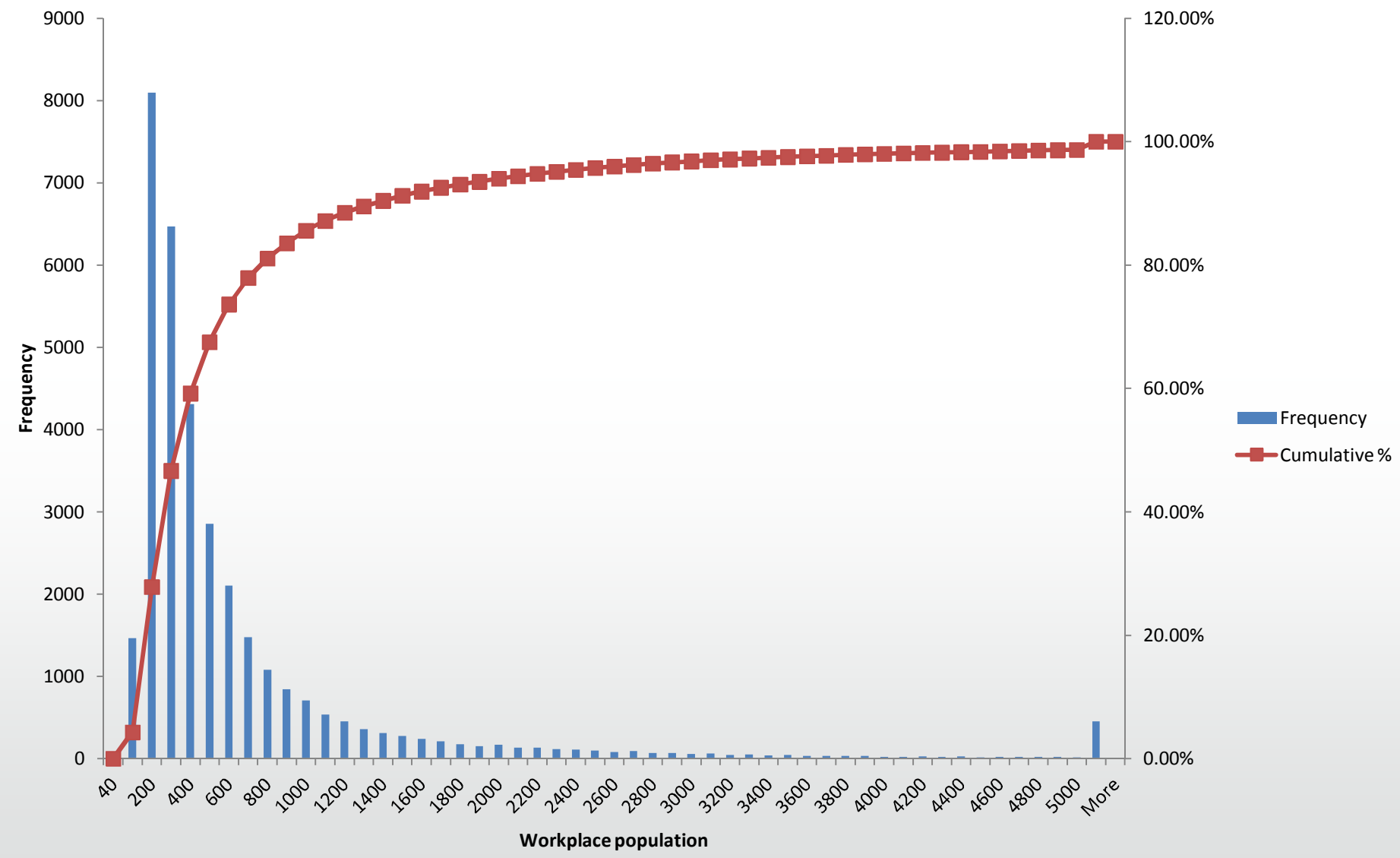
Census output areas and workplace zones

- 2001/2011 Census output areas designed to reflect residential geography
- Distribution of workplace population/ workplaces is very different
- Restricted utility of 2001 workplace data
 - Not enough subdivision of business districts (largest 2001 OA had 80,000 workers)
 - Not enough data in suburban and rural areas, hence disclosure concerns (many OAs have no workers) – very limited output data

OA workplace population totals (2001)



LSOA workplace population totals (2001)



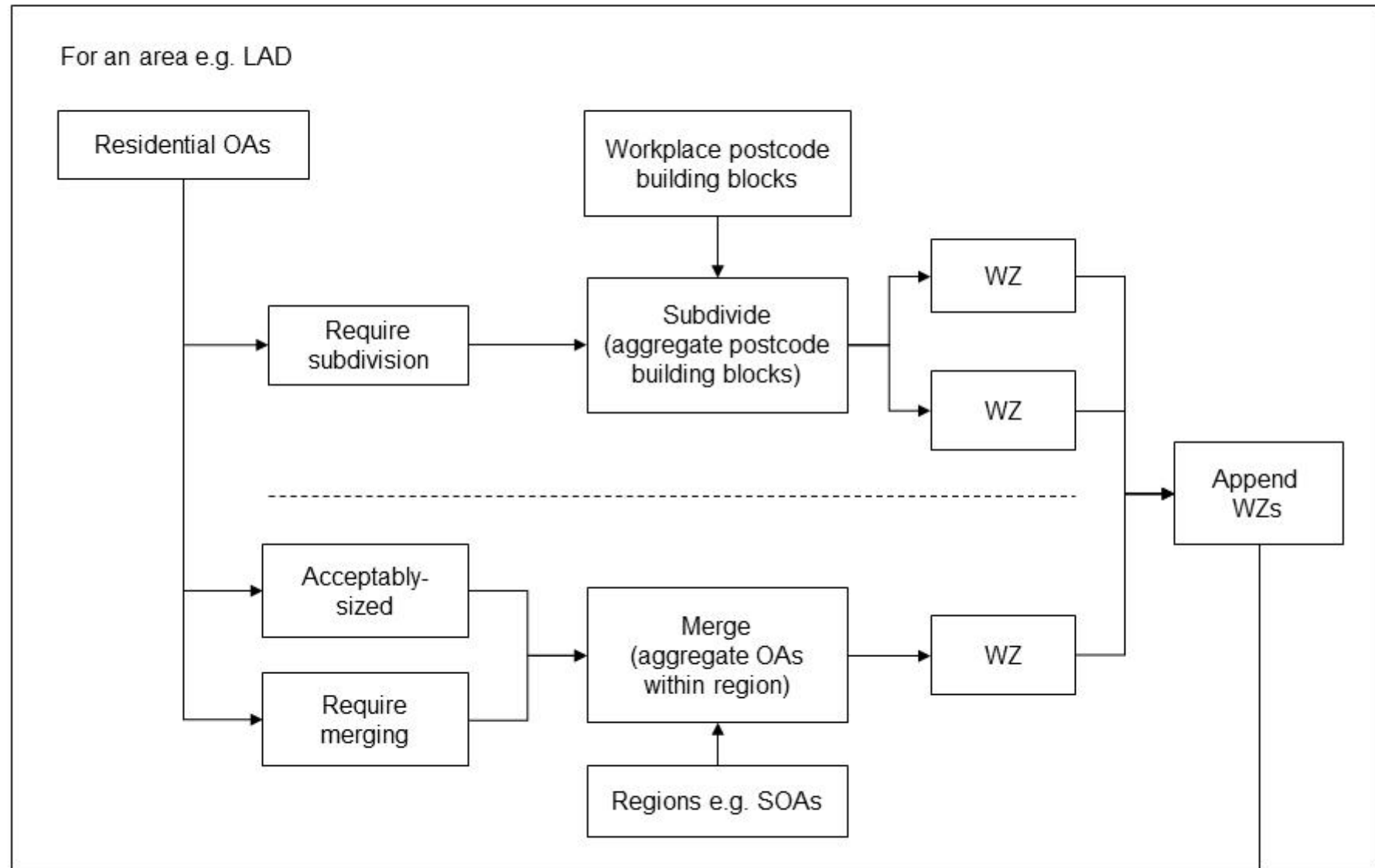
Workplace data available in 2001

- Four univariate tables: Age, NS-SeC, Approximated social grade, Distance travelled to work
- BUT NOT:
- Mode of travel to work, Industry of employment, Size of workplace, etc
- Age and sex, or any other multivariate tables

Basic logic for workplace zones

- Some output areas have very large workplace populations and can be subdivided into two or more workplace zones
- Some are about the right size and can be retained as workplace zones
- Some have very small workplace populations and need to be combined to permit publication of useful range of statistics

Processing sequence

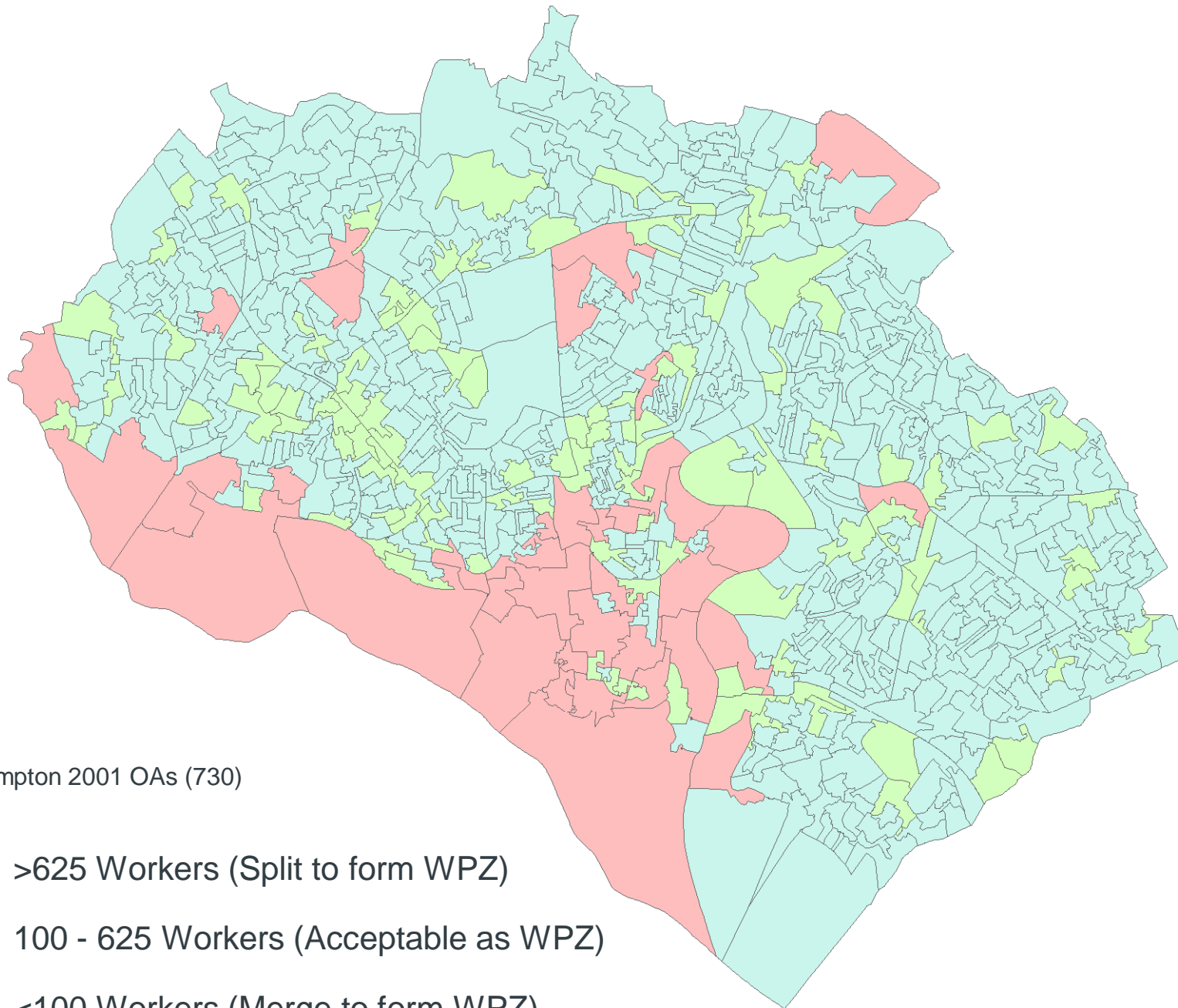


Workplace zone design criteria 1




- Workplace zones built from unit postcode Thiessen polygons (not individual addresses)
- Subdivide or merge whole OAs, within MSOAs
- Workplace population treated like residential population: minimum 100, attempt to split if more than 625
- Workplaces cannot be treated like households, but still need to be protected from disclosure...

Workplace zone design criteria 2

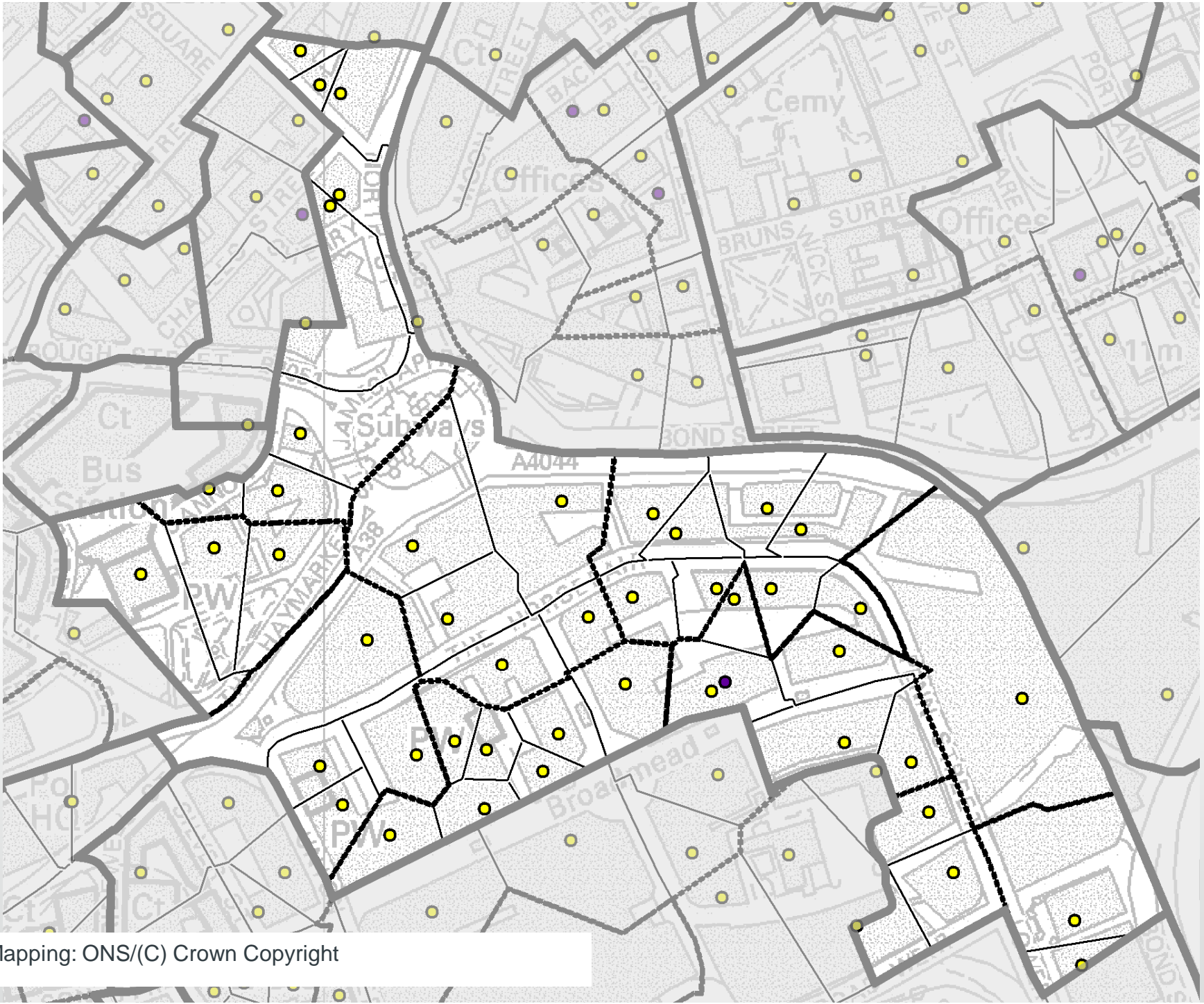
- Any workplace zone should have
 - At least 3 postcodes AND
 - 100 workers more than are in its largest postcode
- Zone design constraints implemented similarly to output areas:
 - workplace population target; homogeneity by industry type (SIC broad code), shape (compactness)



Southampton 2001 OAs (730)

-  >625 Workers (Split to form WPZ)
-  100 - 625 Workers (Acceptable as WPZ)
-  <100 Workers (Merge to form WPZ)

Mapping: ONS/(C) Crown Copyright



Mapping: ONS/(C) Crown Copyright



Mapping: ONS/(C) Crown Copyright

Observations

- Patterns as expected: more zones in city centres; fewer in suburban residential areas
- Increased uniformity of workplace population sizes
- WZs created by splits and mergers exhibit somewhat different statistical characteristics
- A few extreme cases not amenable to automated solution: required manual intervention

Developing census outputs story...

- ONS outputs prospectus set out initial plans for four phases of data output, mostly delivered
- Output area and workplace zone boundaries, geography lookup tables released
- More complex data outputs still to follow, but most by end of March 2014
- Still to come includes workplace statistics, origin-destination (commuting and migration) datasets, microdata samples...

Photos:
David Martin



Counting the Population

- Following Treasury sub-Committee report 2008, ONS committed to exploring census alternatives for 2021
- Census perceived to be expensive/inefficient, inflexible design with long wait for data. Desire to make greater use of administrative data already collected by government
- Programme of work last 2 years, now focused down on just two options, public consultation open until 13 December
- Potentially massive changes are proposed and users need to respond – especially if interested in detailed data for small areas

The options on the table

- Mostly online census
 - Coverage challenges, non-response bias, mixed modes, cost of follow-up, standard “census” risks
- Administrative data and surveys
 - Admin data (mainly health/DWP/HMRC/education) for annual demographic data; rolling programme of 4% social surveys for characteristics. Complex design!
- Missing link: characteristics from admin sources?



The census and future provision of population statistics in England and Wales

Public consultation

September 2013

Things to do...

- Explore the new data already available
- Easy tools for initial visualization, then lots of Open Data – including boundaries – for detailed investigation (NOMIS, ONS, INFUSE, etc.)
- Look out for new products spring 2014 – esp. workplace data, interaction data
- Consider implications of future options and respond to the ONS “Beyond 2011” consultation NOW – have your say before it’s too late!

Questions,
discussion.