



The Census Transformation Programme: Progress and Prospects

Meghan Elkin

National Statistician's recommendation (March 2014)

An **online census** of all households and communal establishments in 2021 - with support for those who are unable to complete the census online.

AND

Increased use of **administrative data and surveys** in order to enhance the statistics from the 2021 Census and improve annual statistics between censuses.

Way forward agreed with Government

- “The Government welcomes the recommendation for a **predominantly online census** in 2021 supplemented by further use of administrative and survey data.
- **Government recognises the value of the census** and its history as a bedrock of statistical infrastructure. The census provides information on the population that is of fundamental importance to society....
- Our ambition is that **censuses after 2021** will be conducted **using other sources of data** and providing more timely statistical information dependent on the dual running sufficiently validating the perceived feasibility of that approach.”

Minister for the Cabinet Office, July 2014

2021 CENSUS

Topic consultation

- Consultation launched in 2015 collecting evidence of information needs from the 2021 Census
- Received 1,095 responses
- 279 responses from organisations, 816 responses from individuals
- Assessed evidence against a range of evaluation criteria to arrive at our updated view

Our response to the topic consultation

We proposed to:

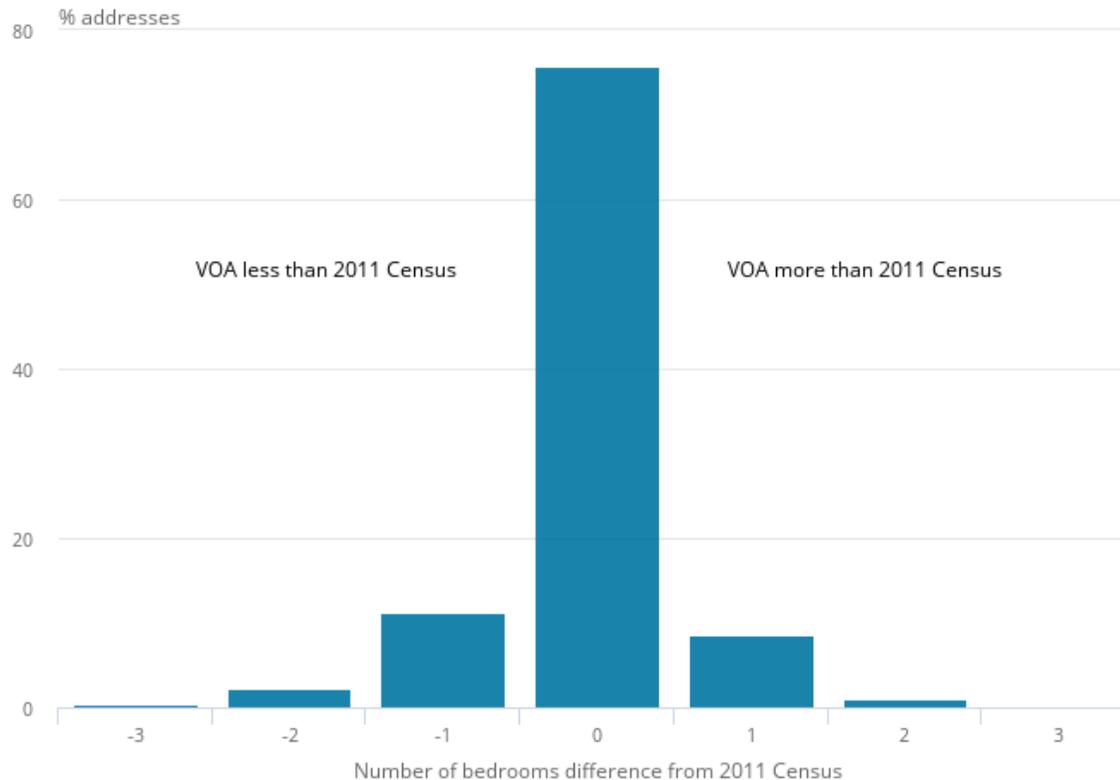
- Collect information about 28 sub-topics (one of which is in Wales only)
- Consider how/whether to meet the need for five sub-topics
 - Number of rooms, Sexual identity, Gender identity, Volunteering, Supervisory status
- Derive one sub-topic – NS-SEC
- Explore the potential for administrative data for three sub-topics
 - Income, Veterans, Year last worked
- Not collect - nine sub-topics

Topic consultation view

Topic	Topic consultation response (May 2016)
Sexual identity	Consider how/whether to meet need
Gender identity	Consider how/whether to meet need
Ethnicity	Collect - explore question design and need for new response options
Number of bedrooms	Collect
Number of rooms	Do not collect – Explore admin data potential
Veterans	Do not collect – Explore admin data potential
Volunteering	Consider how and whether to meet need
Year last worked	Do not collect – Explore admin data potential
Supervisory Status	Consider how/whether to meet need
Qualifications	Collect – review the question design
Main language	Collect

Using Valuation Office Agency data for number of rooms and bedrooms

Figure 3: Distribution of differences in number of bedrooms between VOA and 2011 Census, addresses in England and Wales



Source: Office for National Statistics

Initial view that with some further development, the VOA data are of sufficient statistical quality to replace the questions on rooms and bedrooms

Seeking feedback:
<https://consultations.ons.gov.uk/census/estimating-rooms-and-bedrooms-consultation/>

Other work

Space saving options being considered on some questions, for example:

- Second address
- Visitor questions

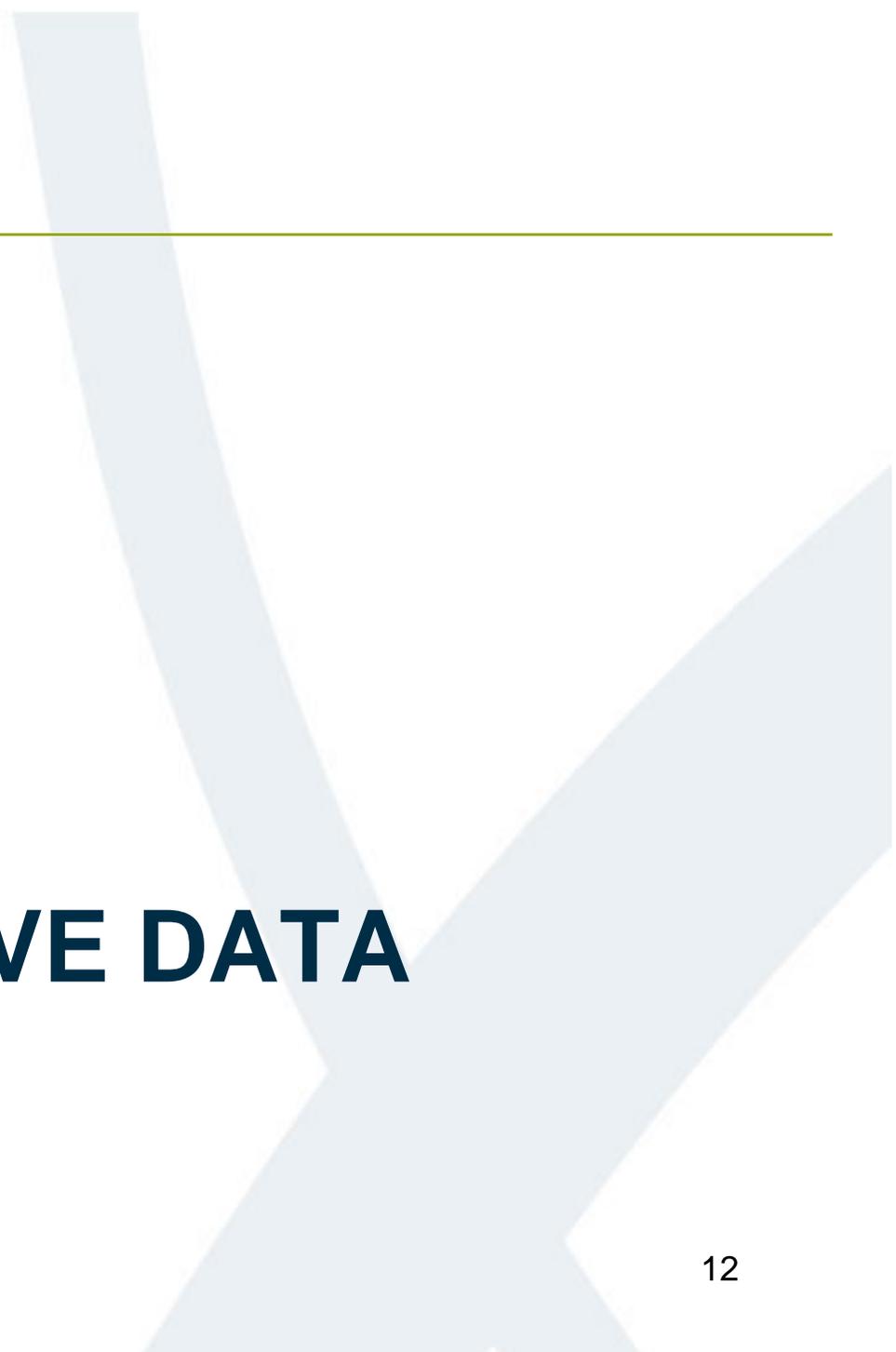
Timetable for development and finalisation of questions

Date	Activity
Spring 2017	ONS have conducted a large scale Census test in 2017 with two main objectives: <ul style="list-style-type: none"> • To test the impact of a question on sexual identity; and, • To test proposed operational procedures and supporting systems.
2017 - 2018	Evaluation of 2017 test results, and further question development activities if required.
April 2018	Census White Paper – which will contain proposals for the topics to be included in the 2021 Census.
Spring 2019	Census Rehearsal – a rehearsal of our near final 2021 Census design including questionnaire content.
January to June 2019	Census Order - draft Order will need to be approved by Ministers by January 2019, for Parliamentary approval by June 2019.
By November 2019	Census Regulations approved and in force - Details about new operational and field procedures as well as copies of the Census questionnaires will be required.

Finalising topics and questions for inclusion within the White Paper

Recommendations on questions/topics will be based on:

- Relative strength of user need and respondent burden
- Have we got space (including Welsh form)?
 - target is 75% returns online
- Can we get a question that works?
- Are we harmonised across Government Statistical Service and, where possible, Scotland & Northern Ireland?



ADMINISTRATIVE DATA CENSUS

What do we mean by an Admin Data Census?

- **Aiming to replicate as many census outputs as possible using admin data (and surveys) by 2021 to compare with 2021 Census**
 - **Recommendation in 2023**
- Three key types of Census outputs:
 - Size of population
 - Number and structure of households
 - Characteristics of housing and the population
- **Lot of potential with admin data but alone, it will not provide the complete solution.**
- **Need access to range of admin data and combine with surveys.** Likely to need two new surveys:
 - Annual 1% coverage survey to help measure size of population and households
 - Annual characteristics survey – size to be confirmed

Census, population and migration statistics system – the future

Current model – Census every ten years

- Lots of detail every ten years, down to small-areas
- Less detail at regional and local authority levels in the interim

Future model – Admin Data Census

Opportunities – more frequent statistics, longitudinal analysis, new outputs

↳ better statistics, better decisions

How will we know if we're ready to move to an ADC?

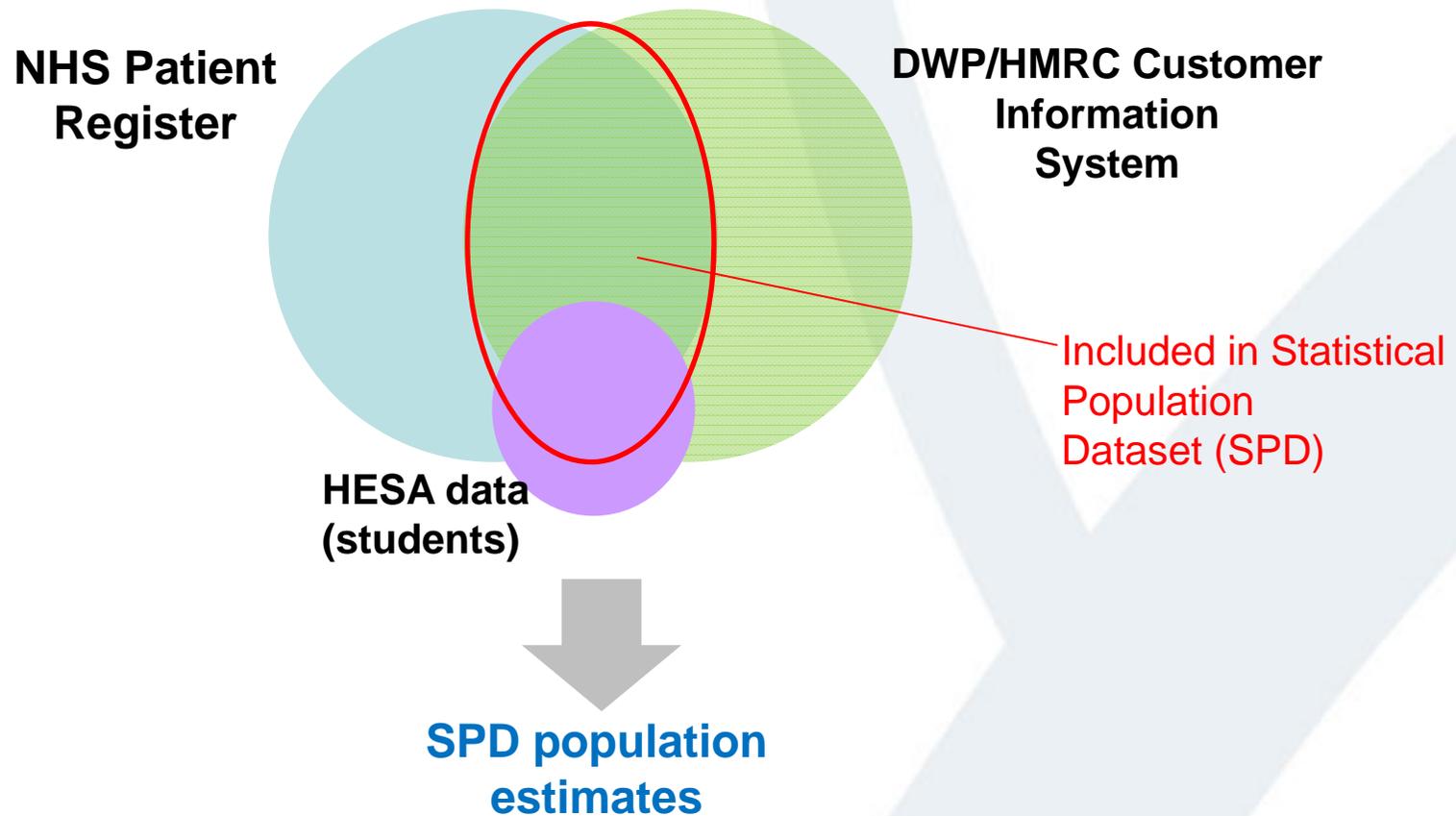
- Research outputs
 - expanding the accuracy and/or breadth and/or detail each year
 - not Official Statistics
- Assessment every Spring (most recent published: June 20 2017)
 - Using five high level criteria
 - where we are now
 - where we expect to be by 2023



SIZE OF POPULATION

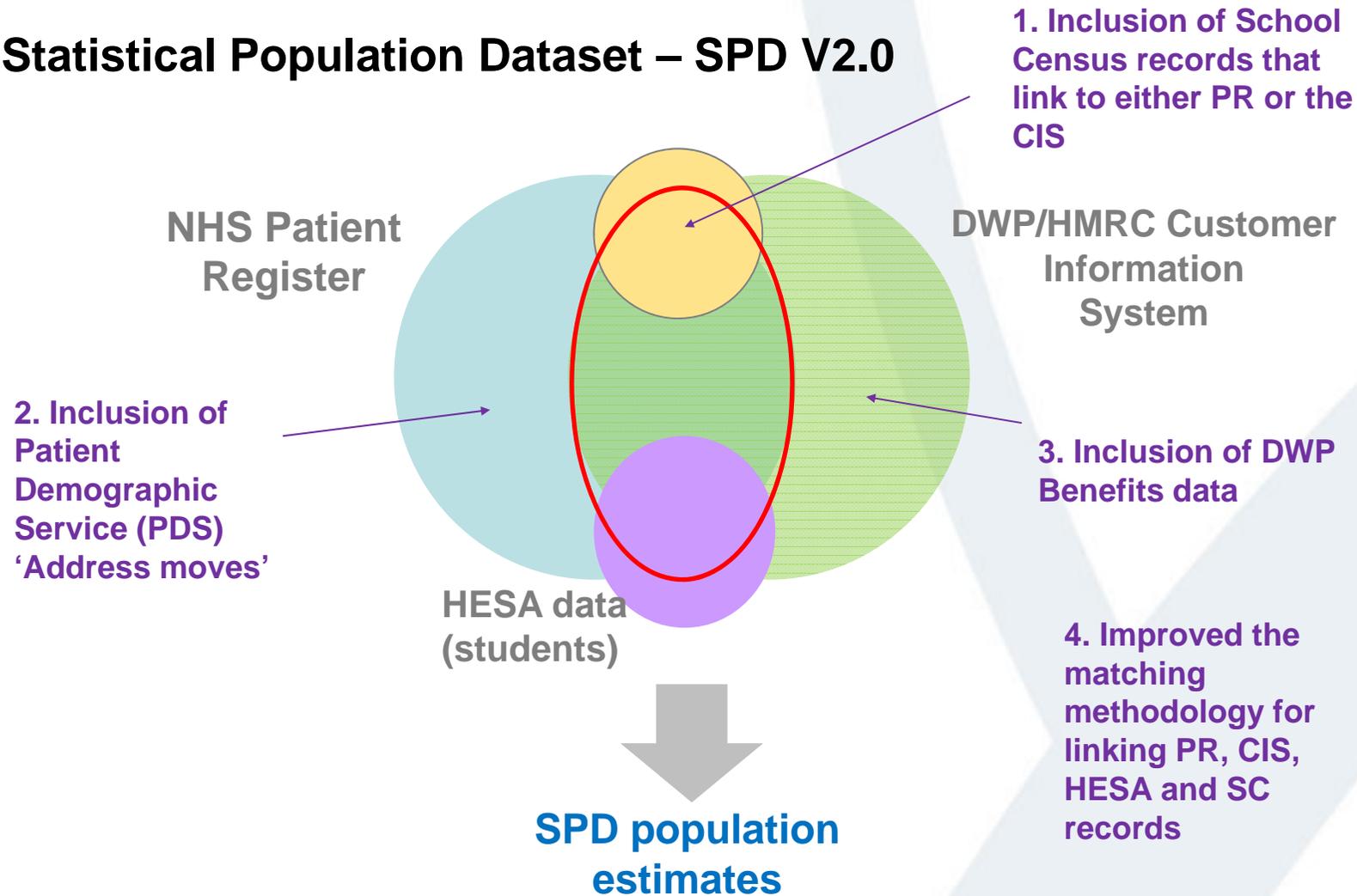
SPD Population Estimates Methodology

Statistical Population Dataset – SPD V1.0

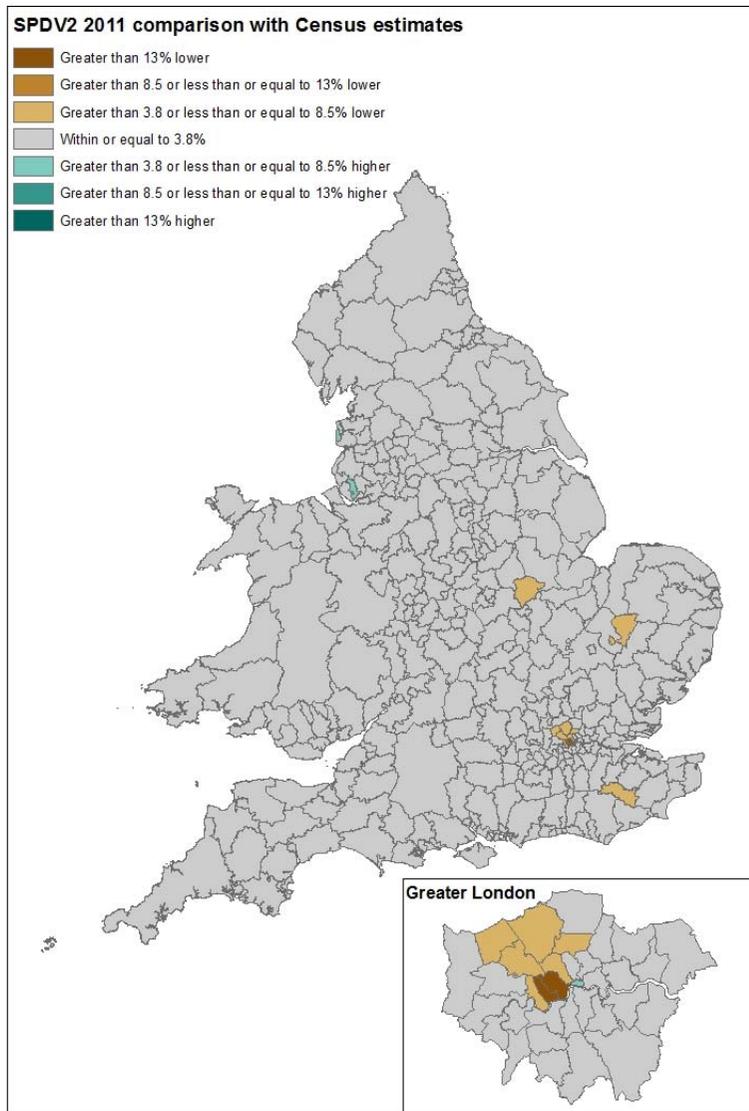


SPD Population Estimates Methodology

Statistical Population Dataset – SPD V2.0

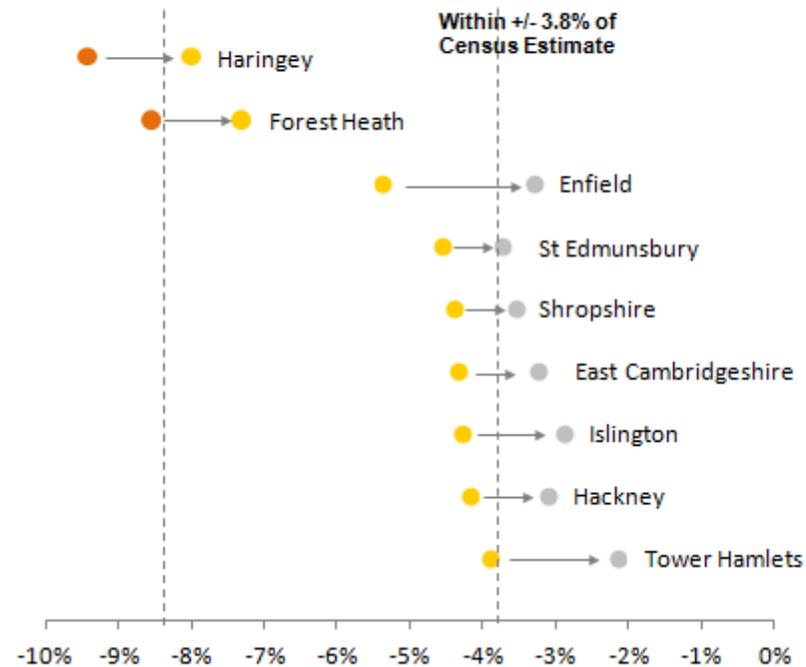


Progress so far – size of the population

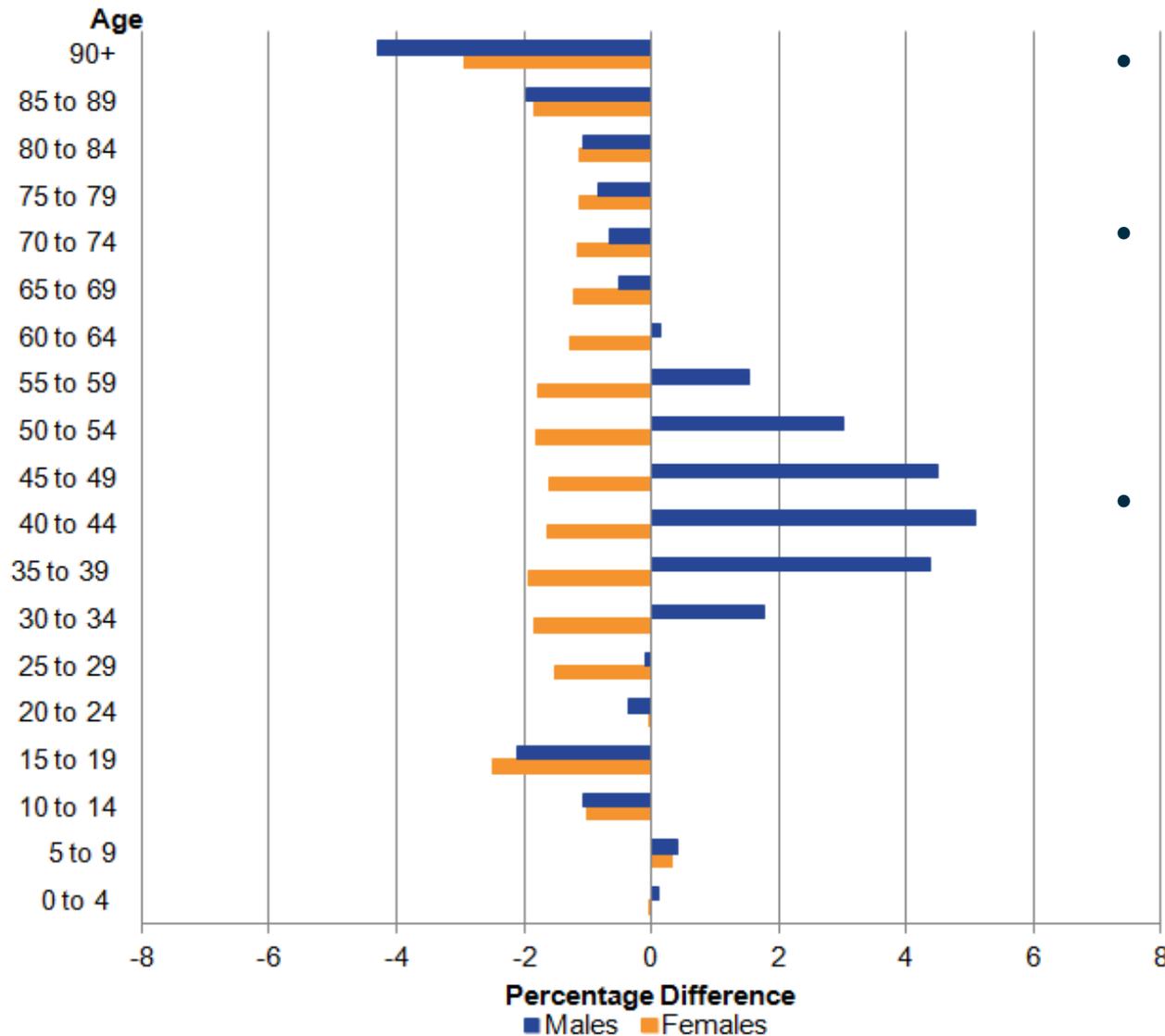


- 96% of LA's (334) are within the quality standard
- This compares with 94% (327) using V1

LA's moving into P1 and P3 quality standards (total populations)



Comparison of SPD V2.0 with 2011 Census by five-year age group and sex, England and Wales, 2011



- Local authority totals hide some of the differences at age/sex
- Larger estimates for working age males compensating for lower estimates in other age/sex groups
- Need more access to 'activity' to identify and remove erroneous records

What next?

- Assessment and use of suitable 'activity' sources for application of estimation methods – coverage adjusted population estimates
- Lower level population estimates (OA) out in November
- Further development of appropriate methods to independently assess quality of population estimates
- Population Coverage Survey Test strategy and design, first test late 2017



NUMBER AND STRUCTURE OF HOUSEHOLDS

Definitions

The definition of 'households' in our research outputs is based on identifying occupied addresses in administrative data. This is different to the traditional definition used in censuses and surveys.

Our outputs include addresses:

- 🏠 with at least one 'usual resident' included in our SPD V2.0
- 🏠 that have been successfully linked to a Unique Property Reference Number (UPRN) on AddressBase

Progress so far – number of occupied addresses ('households')

Comparing with Census for 2011 and LFS figures for 2015



Source: Office for National Statistics

Progress so far – ‘household’ size

Percentage of local authorities within one percentage point of census estimates

		%
Household size	SPD	SPREE
One person	59.5	18.4
Two person	0.9	37.6
Three person	9.5	63.5
Four person	89.7	81.9
Five plus people	57.2	88.5

Source: Office for National Statistics

Notes:

1. SPD - Statistical Population Dataset.
2. SPREE - Structure Preserving Estimator.

What next for households?

- Assessment and use of suitable 'activity' sources for application of estimation methods – coverage adjusted household estimates
- Household estimates to be expanded to lower level geography (LSOA) and produce household composition



CHARACTERISTICS OF HOUSING AND THE POPULATION

Access to data

GREEN – Some data available to ONS

Demographics

Age
Sex
Marital or Legal Partnership Status

Education

Term Time Address

Ethnicity, Identity, Language & Religion

Ethnic group
Citizenship (passport held) or Nationality

Health

Disability and Long Term Health Conditions

Housing

Accommodation Type
Number of Rooms
Number of Bedrooms
Tenure and Landlord (if renting)

Labour Market

Employed (including students, excluding self employed)
Economically inactive, unable to work i.e. long term sick
Unemployed (including students)

Migration

Country of Birth

AMBER – Some data available but ONS currently doesn't have access

Demographics

Household Composition

Education

Qualifications held

Ethnicity, Identity, Language & Religion

Ethnic group
Citizenship (passport held) or Nationality
English language proficiency
Welsh language
Main languages used

Health

Disability and Long Term Health Conditions

Housing

Tenure and Landlord (if renting)
Second residences

Labour Market

Number of hours worked
Industry
Year Last Worked
Economically inactive, retired

Migration

Country of birth
Internal/International Migration (including address one year ago)

Travel

Number of Cars/Vans

RED – Limited or no data available

Demographics

Family relationships

Ethnicity, Identity, Language & Religion

National identity
Religion

Health

General Health
Amount of unpaid care provided

Housing

Self-containment of accommodation

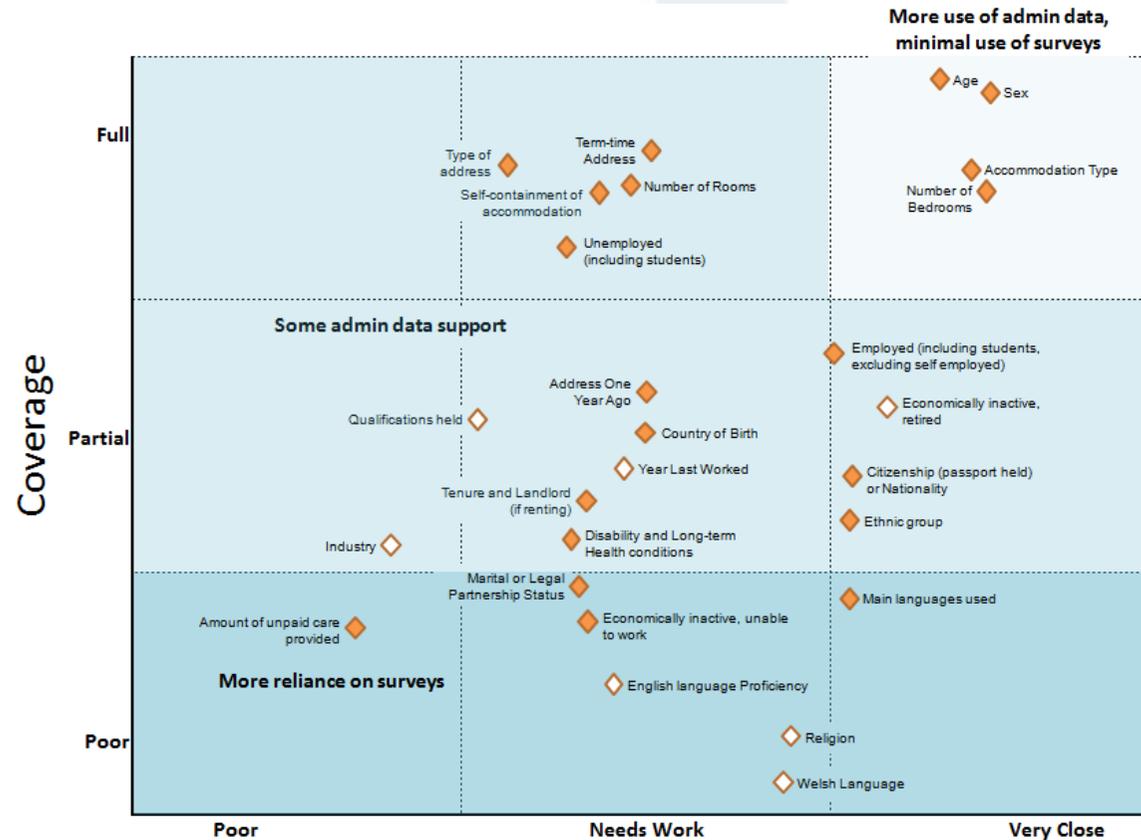
Labour Market

Economically inactive, looking After Family
Address of place of work
Supervisor Status
Occupation

Travel

Method of transport to place of work

Assessment of admin data to support progress on characteristics topics

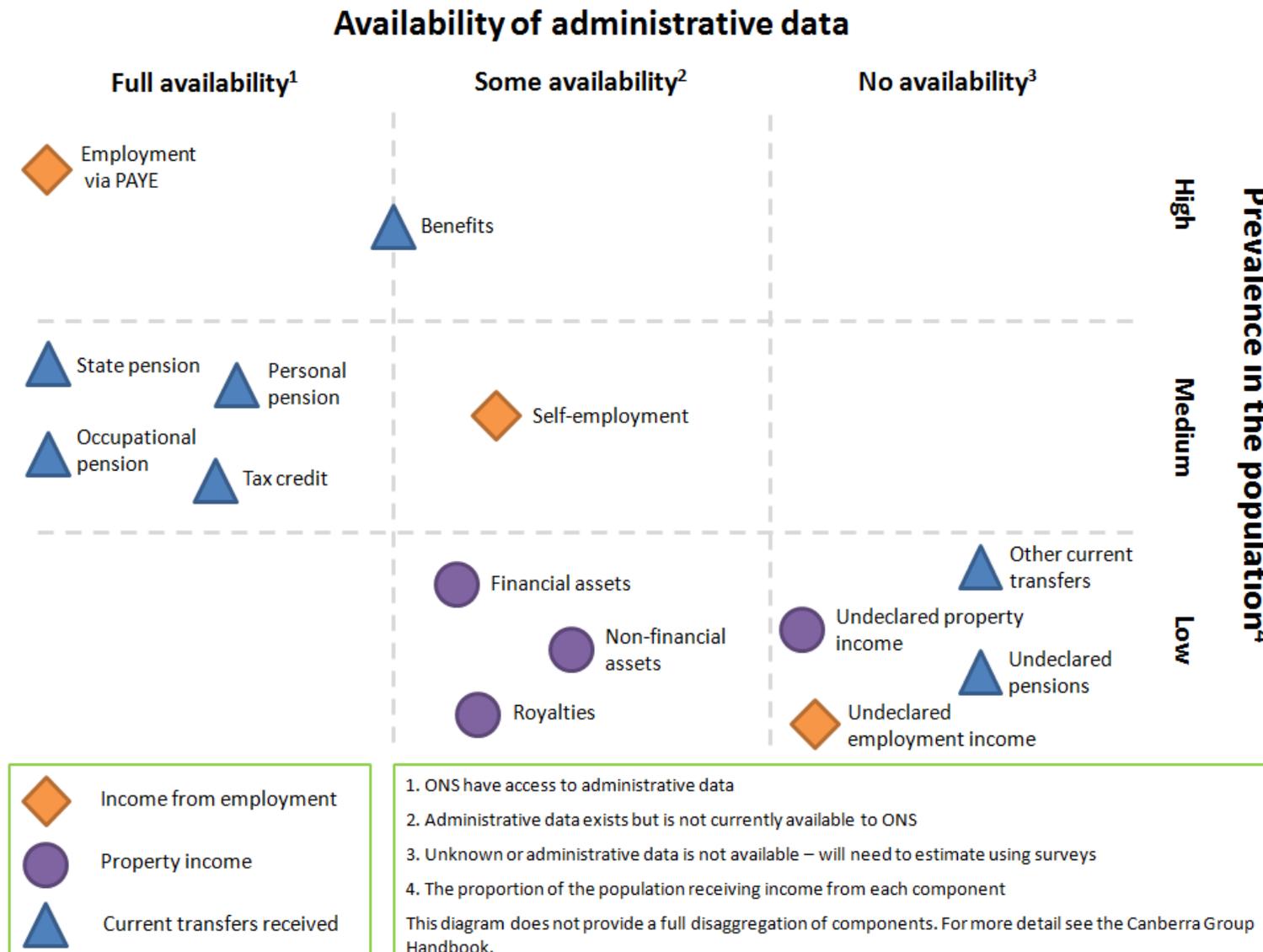


- ◆ Some data available to ONS
- ◇ Some data exists, but it is not available to ONS

- Characteristics where data is not available, and there is insufficient meta-data to subjectively score.
- Household Composition
 - Number of hours worked
 - Second residences (other addresses)
 - Number of cars and vans
 - Migration (Year of arrival, Length of stay)

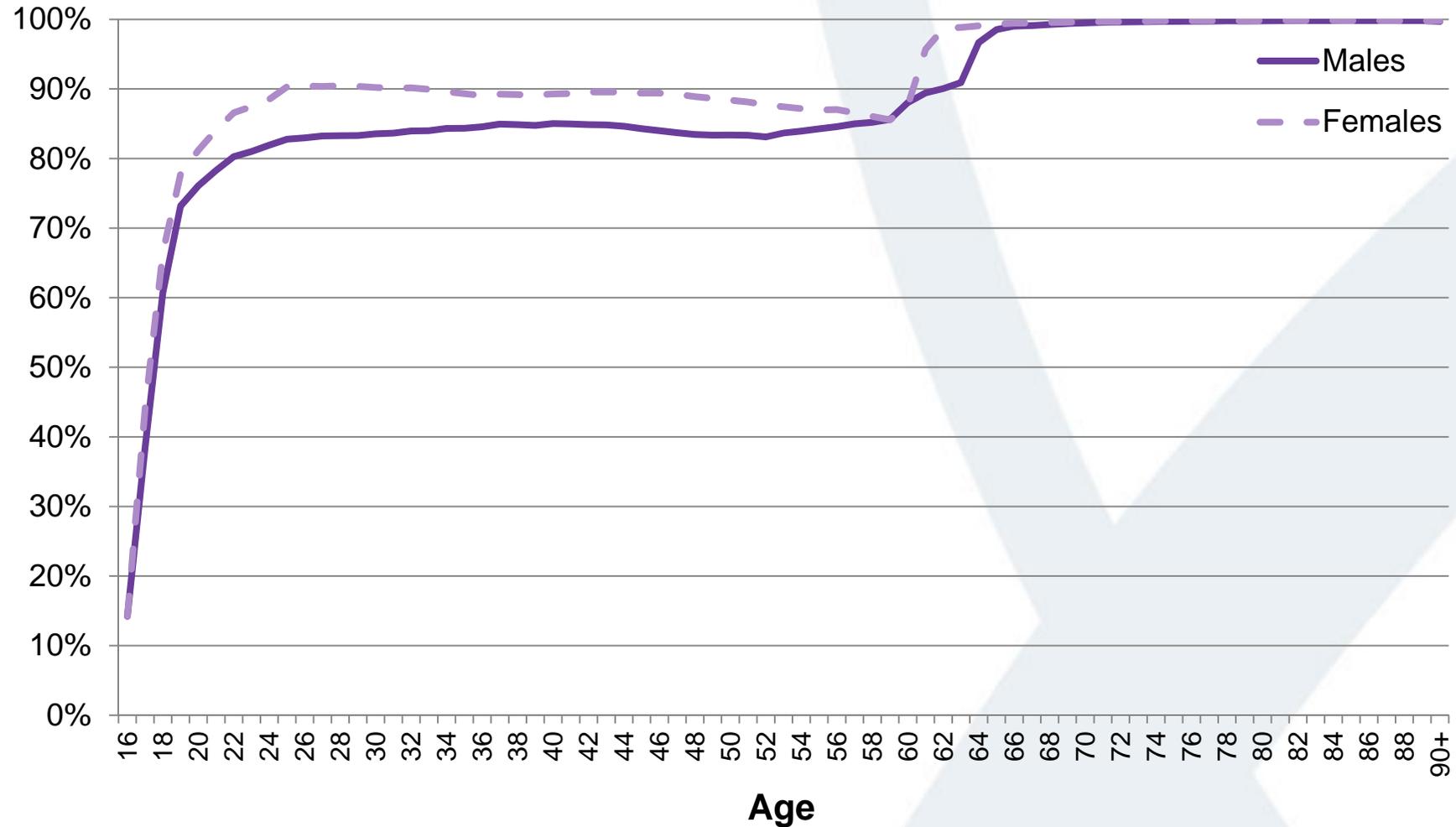
- Characteristics with no accessible data:**
- General Health
 - National Identity
 - Address of place of work
 - Supervisor status
 - Method of transport to place of work
 - Economically Inactive, looking after family
 - Family relationships
 - Occupation

Availability of administrative data on the components of income



Percentage of SPD population with some PAYE and benefit income information

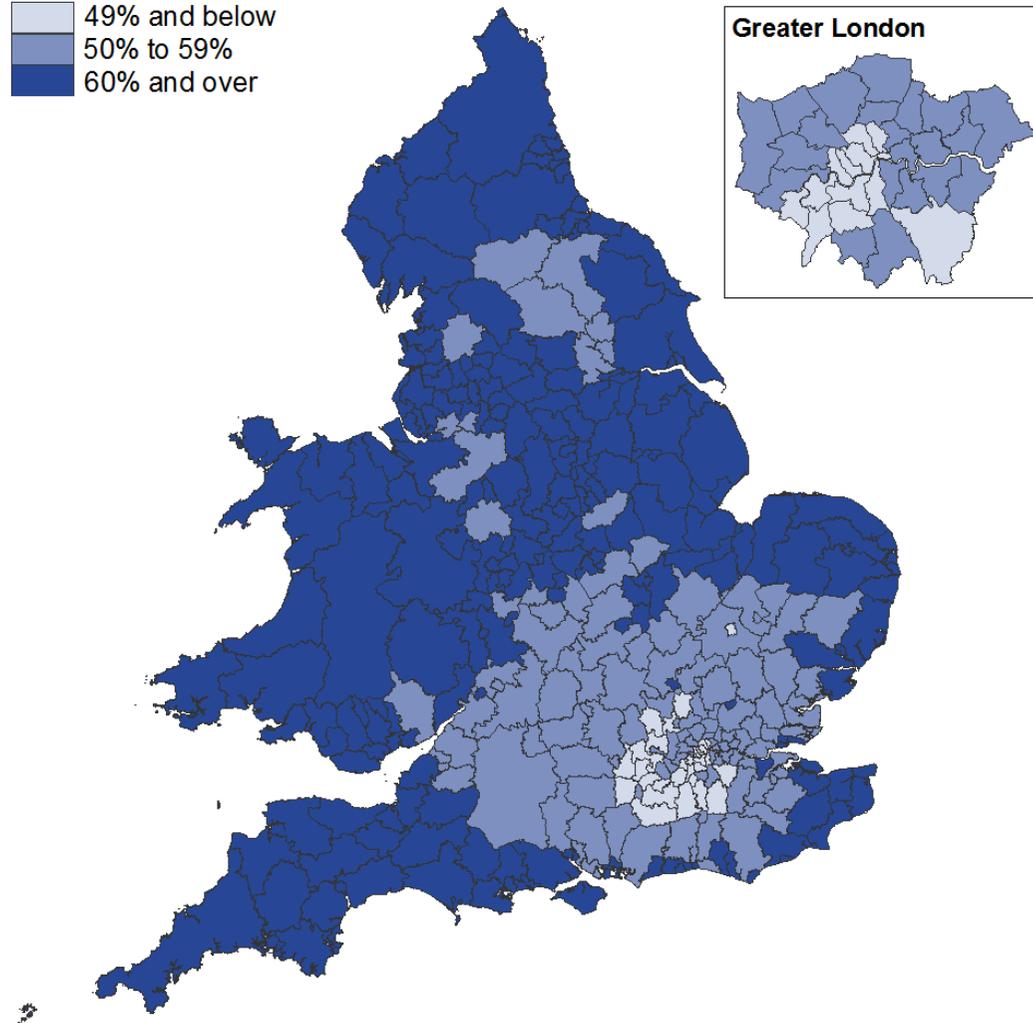
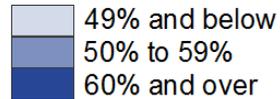
Proportion of the population



Percentage of the population with PAYE and benefits income of £20,000 or below by local authority

Tax year 2013/14

Males and females, aged 16 and over



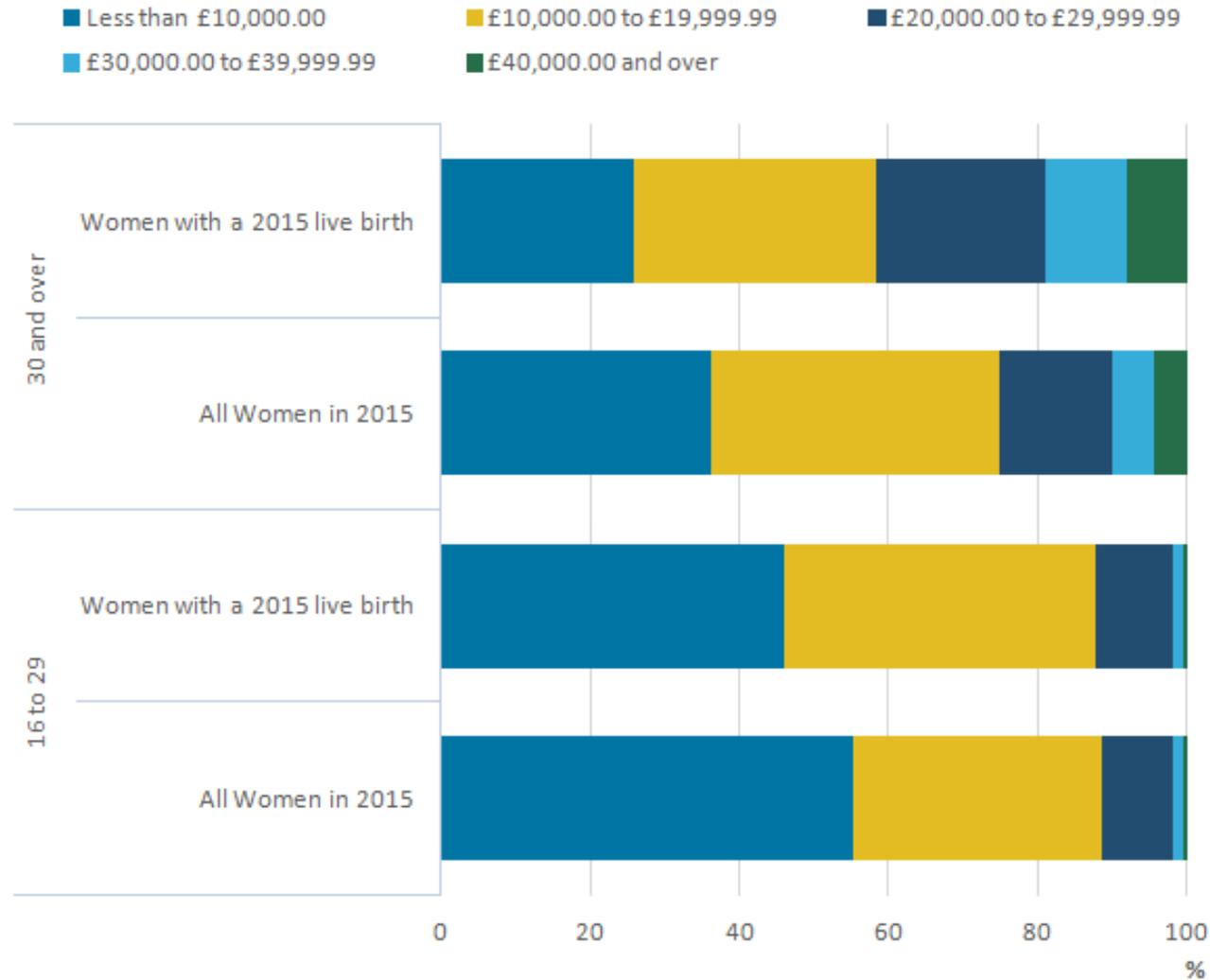
Notes:

Data Source: Pay As You Earn (PAYE) employment and pension data and tax credits data from HMRC and benefits data from DWP.

Limited as a number of components of income are missing, e.g. Self Assessment

PAYE and benefits income refers to individual gross nominal annual estimates income

New mothers' income from PAYE and benefits



Source: Office for National Statistics

Tax year ending 2014 for women who had a live birth in 2015 and all women in 2015

Planned topics

On Friday

- An approach for estimating ethnicity from survey and administrative data, 2011

Future plans

- Ethnicity estimates for 2015
- Initial research into economic activity and travel to work
- Internal migration from SPDs

Annual Assessment

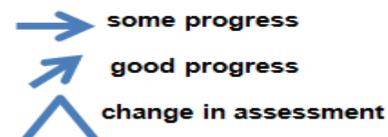
- Focus on assessment against 5 high level evaluation criteria
 - Access to data
 - Ability to link
 - Methods to produce estimates that meet priority information needs
 - Acceptability to stakeholders
 - Value for money
- Covered where we are now, where we expect to be and what are we doing to get there

This years assessment

Evaluation Criteria		2016 Assessment	Progress made since 2016	2017 Assessment	Expected progress by 2018	Expected assessment by 2023
Access to data						
Ability to link						
Ability to meet information needs of users	Population estimates					
	Household and families estimates					
	Population and household characteristics					
	Housing characteristics					
Acceptability to stakeholders						
Value for money						

Key to chart

RAG status



Next steps

Over the next year, ONS will do the following:

- Continue to publish Administrative Data Research Outputs and seek feedback from users.
- Continue progress on acquiring administrative data and understanding the statistical quality of the data that are accessed.
- Submit our methods for an External Assurance Assessment
- Continue to engage with users and data suppliers through the Census Advisory Groups, Data Supplier Groups and other working groups

Stay in touch

- Publications on www.ons.gov.uk/census/censustransformationprogramme/administrativedatacensusproject
- Follow @becky_tinsley
- You can contact us on:
Admin.Data.Census.Project@ons.gsi.gov.uk