

# Comparing 2011 Census data with data from past censuses

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# Why do this?

- Time-series analysis
- How has population changed between 2001 and 2011
- Changes to population distribution / density
- Changes to population characteristics
- Impact of government policies introduced between 2001 and 2010



# Home Ownership – 2001 vs 2011



People born abroad



Christians compared,  
2001 and 2011



Mortgages compared,  
2001 and 2011

Some 64% of homes in England and Wales were owned - either with a mortgage or loan, or outright - in 2011. This was four percentage points lower than in 2001.

There was a decline in homes owned with a mortgage or loan, from 8.4 million (39% of households) in 2001, to 7.6 million (33% in 2011. But there was a rise in homes owned outright, from 6.4 million (29%) to 7.2 million (31%). Meanwhile, the number of homes rented from a private landlord or letting agency almost doubled from 1.9 million (9%) in 2001 to 3.6 million a decade later.

Enter a full postcode. EG W1A 1AA



## England and Wales

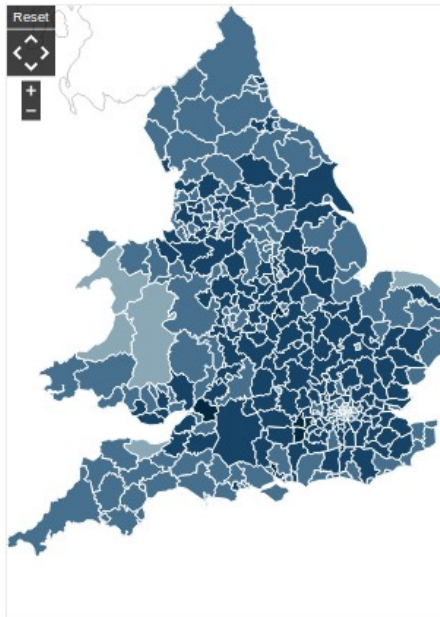
Homes owned with a mortgage in 2001:

**8.4 million or 39%**

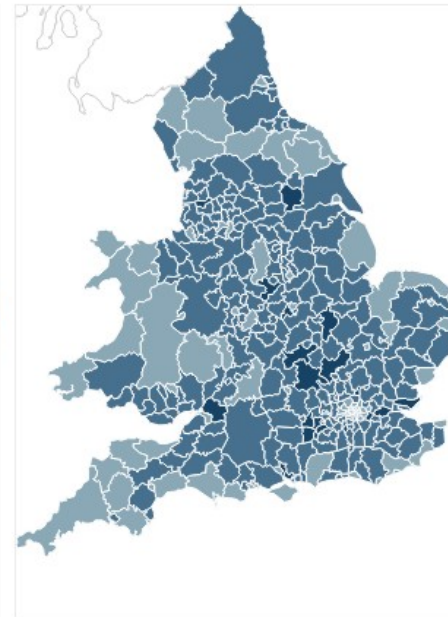
Homes owned with a mortgage in 2011:

**7.6 million or 33%**

Percentage of homes owned with a mortgage, 2001



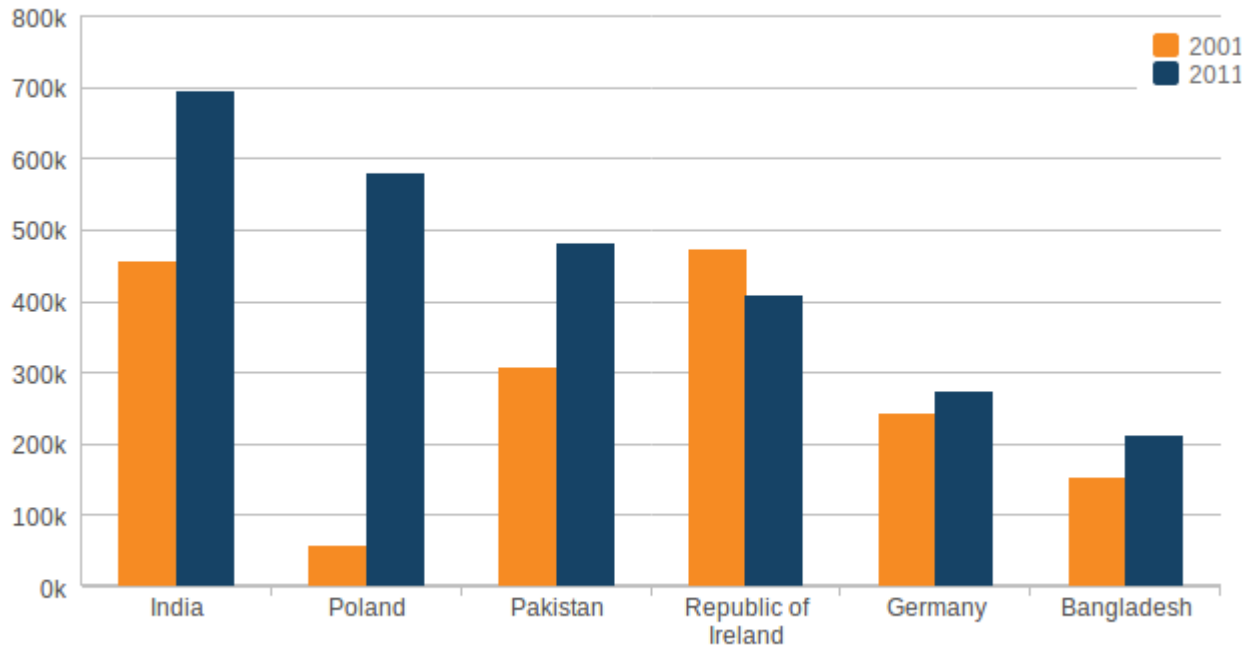
Percentage of homes owned with a mortgage, 2011



# Country of Birth – 2001 vs 2011

Most frequent country of birth for residents from outside the UK

Thousands



Source: ONS



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# What are the main issues?

- Census Questions – asked / phrased
- Geography – boundary changes



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# Issue #1: Questions

- Questions asked on census form may differ between censuses
- Categories provided on census form may differ
- Some New Questions added in 2011
- Some 2001 Questions dropped in 2011



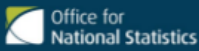
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# Coping with question changes

- ONS produce documents defining census question compatibility across census years
- e.g. from 2001 to 2011
- e.g. from ethnicity 1991 to 2001



# Issue #1: Questions


2011 Census: User Guide



## 2011-2001 Census in England and Wales Questionnaire Comparability

December 2012


This is one of a series of information papers published to support the release of results from the 2011 Census. This series provides information about the comparability of census results.

Terms used in the series are explained in the [2011 Census glossary](#).

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2011-2001 Census in
December 2012 1



**Table 1: Indicators of comparability by question**

B.1	Household family and Family relationships	Fully comparable
B.2	Household Continuation Sheet - Household and Family relationships	Fully comparable
B.3	Sex	Fully comparable
B.4	Marital and civil partnership status	Broadly comparable
C.1	Accommodation type	Fully comparable
C.2	Self-contained accommodation	Fully comparable
C.3	Number of rooms	Fully comparable
C.4	Number of bedrooms	New question in 2011
C.5	Type of central heating	Fully comparable
C.6	Tenure	Fully comparable
C.7	Type of landlord	Broadly comparable
C.8	Number of vehicles	Fully comparable
D.1	Reasons for not working*	Fully comparable
D.2	Ever worked	Fully comparable
D.3	Self-employed or employee	Fully comparable
D.4	Job title*	Fully comparable
D.5	Job description*	Fully comparable
D.6	Supervisor status*	Fully comparable
D.7	Industry	Broadly comparable
D.8	Travel to work	Fully comparable
D.9	Hours worked	Fully comparable
E.1	Qualifications	Broadly comparable
F.1	General health	Broadly comparable
F.2	Cares	Fully comparable
F.3	Long-term illness or disability	Broadly comparable
G.1	Country of birth	Fully comparable
G.2	Month and year of arrival in the UK	New question in 2011
G.3	Intended length of stay in the UK	New question in 2011
G.4	Passport	New question in 2011
G.5	Usual address one year ago	Broadly comparable
H.1	National identity	New question in 2011
H.2	Ethnic group	Broadly comparable
H.3	Knowledge of Welsh language (Wales only)	Fully comparable
H.4	Main language and spoken English proficiency	New question in 2011
H.5	Religion	Fully comparable
I.1	Other address	New question in 2011
J.1	Schoolchild or student	Fully comparable
J.2	Student term-time address	Broadly comparable

\* This information is used to derive census estimates but is not published itself as part of the standard census products.

Questionnaire Comparability
December 2012 6





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# Issue #2: Geography

- To facilitate time-series analysis, ideal would be for census output geographies to be same in each census
- But between censuses, underlying population distribution and density changes requiring adjustment to boundaries
- Changes in shape; areal extent; relation with neighbours
- Only 2.5% of 2011 Output Areas different from 2001
- Still a problem if in your area of interest.



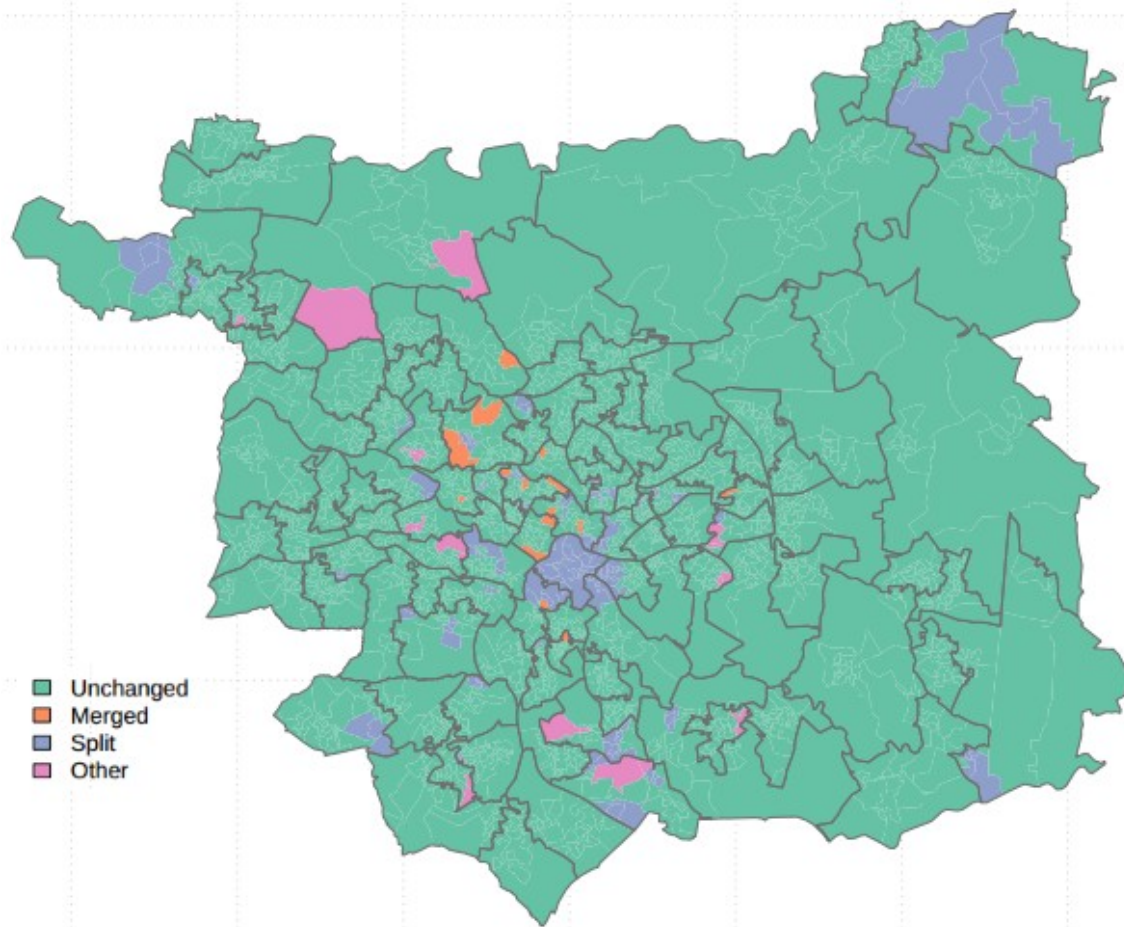
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# ONS 2001 to 2011 OA lookup files

- ONS Lookup Table providing lookup from 2001 to 2011
- 2001 OA to 2011 OA / Local Authority
- 2001 LSOA to 2011 LSOA / Local Authority
- 2001 MSOA to 2011 MSOA / Local Authority
- Indication of where there is no change; where there is splitting; where there is merging; where there is fragmentation.



# Change to Leeds Output Areas from 2001 to 2011:



Map created by Alex Singleton

Contains National Statistics data © Crown Copyright and database right 2012  
Contains Ordnance Survey data © Crown Copyright and database right 2012

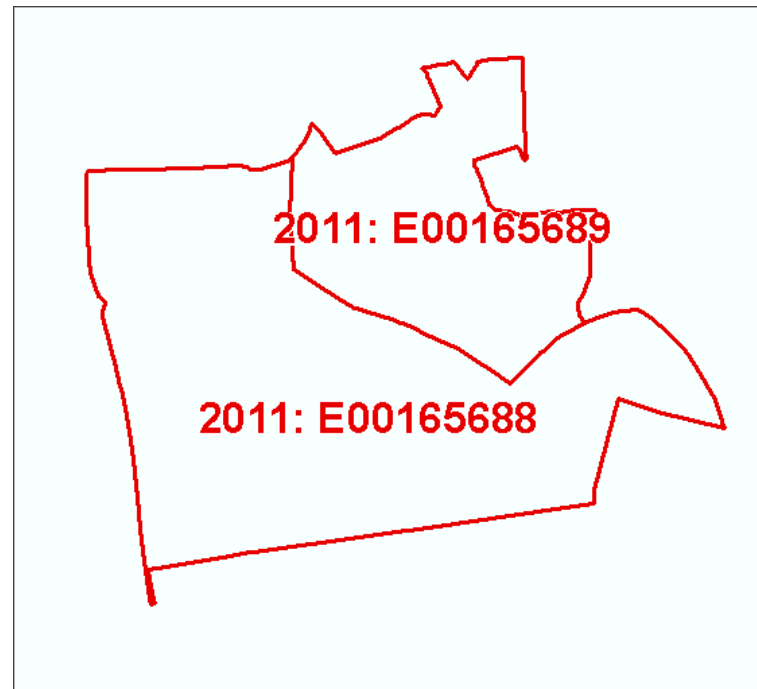
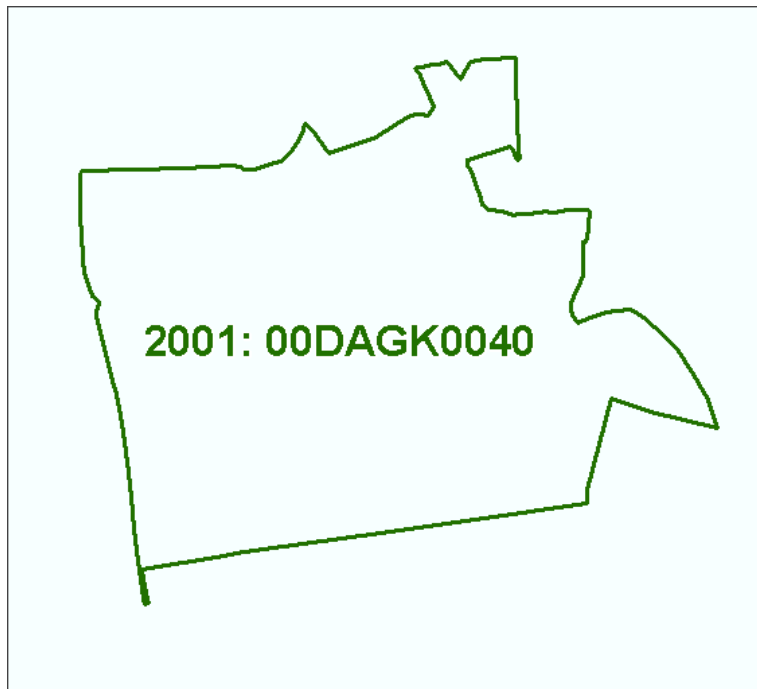
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# Consider 1 split Output Area

OA01CDO	OA11CD	CHGIND
00DAGK0040	E00165688	S
00DAGK0040	E00165689	S

- Increase in population density has led to 2001 OA being split into two in 2011



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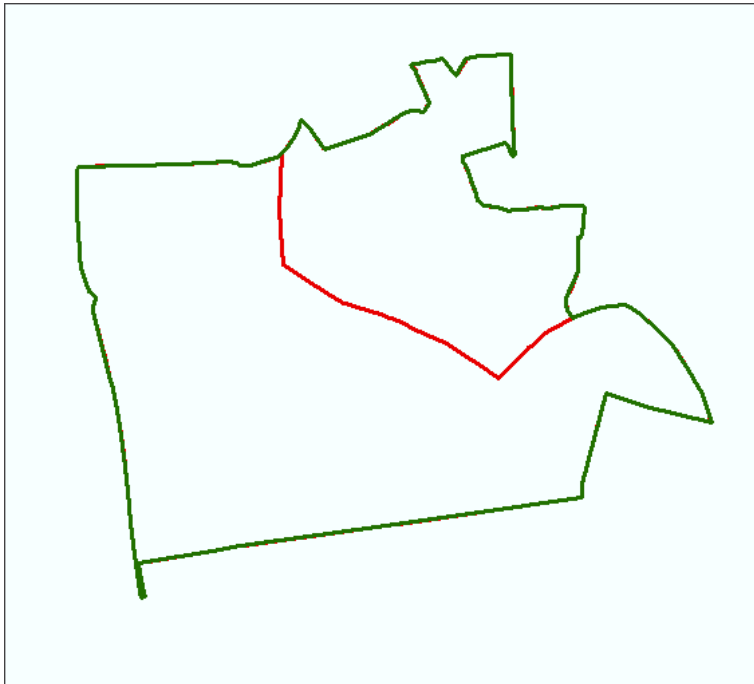
# General Method

- Bring the data we are making comparisons between to the same geography
- Output 2011 data using 2001 Output Areas
- Output 2001 data using 2011 Output Areas
- Redistribute population / census stat counts from 2001 to 2011 Output Areas



# Redistributing Method 1

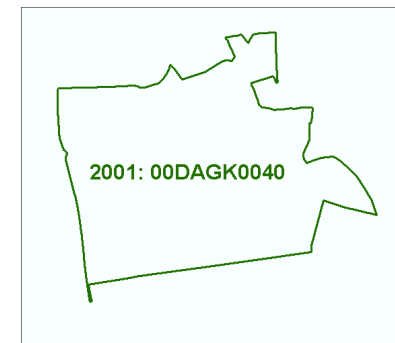
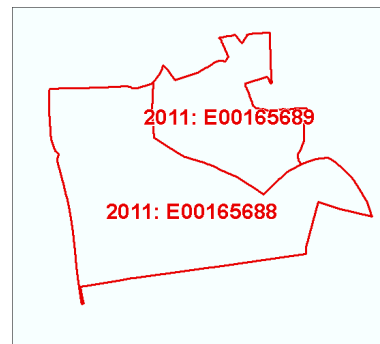
- Calculate areal overlap?



Bottom 2011 OA covers 70% of the area of single 2001 OA

Top 2011 OA covers 30% of the area of single 2001 OA

So distribute 70% of 2001 counts to bottom 2011 OA and 30% of 2001 counts to top 2011 OA



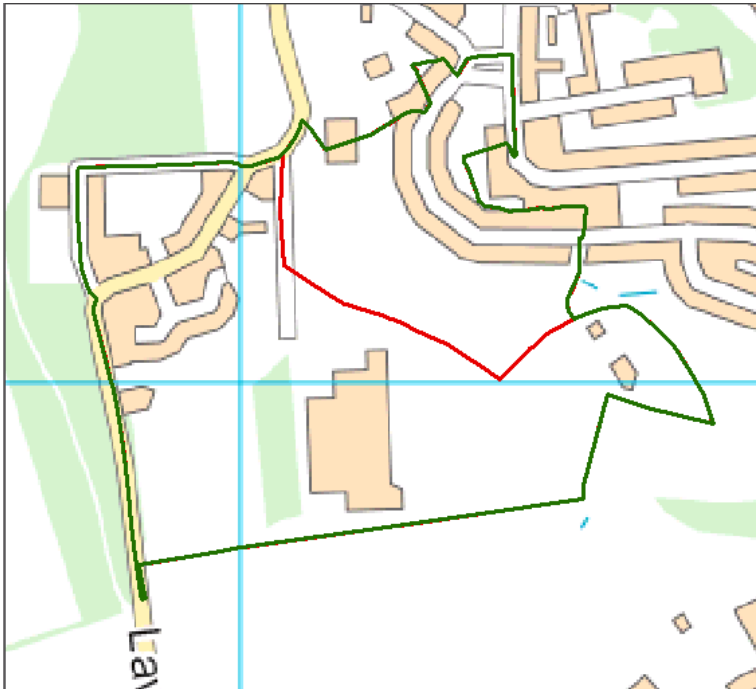
Service  
Report



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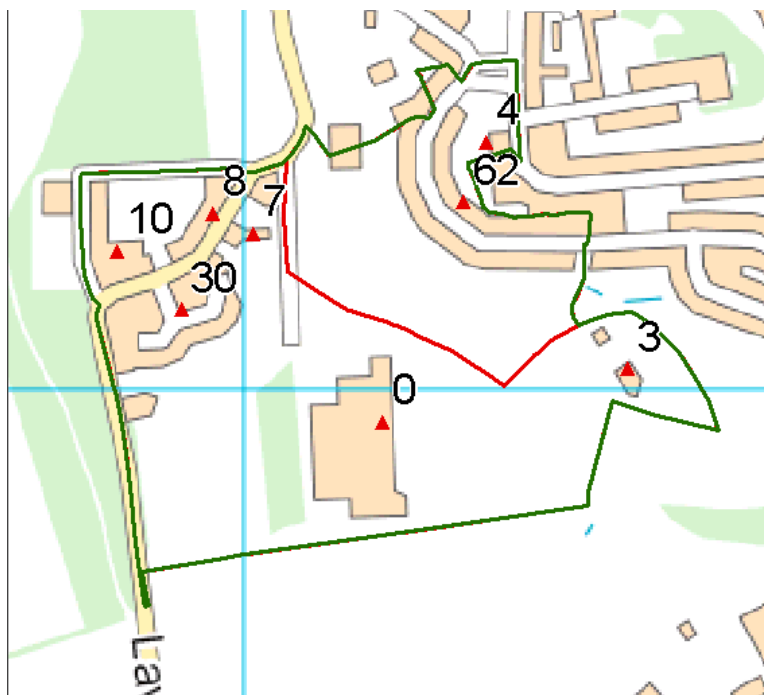
# BUT!

- Population distribution not uniform across polygon



# Redistributing Method II

- Need a proxy for population distribution
- 2001 Census Headcounts by postcode locations



Total HH in 2001 = 124

Total HH in 2001 in bottom  
2011 OA =  $58 / 124 = 47\%$

Total HH in 2001 in top 2011  
OA = 53%

So distribute 47% of 2001  
counts to bottom 2011 OA  
and 53% of 2001 counts to  
Top 2011 OA.