

Subnational estimates of dwellings and households by tenure QMI

QMI for subnational estimates of dwellings and households by tenure in England, detailing the strengths and limitations of the data, methods used, and data uses and users.

Contact:

Release date:
31 January 2022

Next release:
To be announced

Table of contents

1. [Output information](#)
2. [About this Quality and Methodology Information](#)
3. [Important points](#)
4. [Quality summary](#)
5. [Quality characteristics of the subnational tenure estimates](#)
6. [Methods used to produce the subnational tenure estimates](#)
7. [Useful links](#)

1 . Output information

National Statistic	No
Data sources	Annual Population Survey (APS) Census 2011 English Housing Survey (EHS) Live tables on dwelling stock (including vacants)
Frequency	Annual
How compiled	Administrative, Census and Survey Data
Geographic coverage	Local authority districts in England
Related publications	Subnational estimates of dwellings and households by tenure
Last revised	31 January 2022

2 . About this Quality and Methodology Information

This quality and methodology information report contains information on the quality characteristics of the data, as well as the methods used to create it.

The information in this report will help you to:

- understand the strengths and limitations of the data
- learn about existing uses and users of the data
- understand the methods used to create the data
- help you to decide suitable uses for the data
- reduce the risk of misusing data

3 . Important points

- These statistics include the estimated number and percentage of dwellings and households by housing tenure type in local authority districts in England.
- To estimate the number of households and dwellings that fall within each tenure category at the local authority level we use the Generalised Structure Preserving Estimator (GSPREE) method, which is a small area estimation technique that combines and draws strength from several data sources.
- It takes census data from 2011 and supplements it with social survey data from the Annual Population Survey (APS) to generate more reliable and complete estimates than it would be possible to generate from each source individually.
- Estimates are benchmarked against row and column margins, which are National Statistics available from the live tables on dwelling stock (including vacants) produced by the Department for Levelling Up, Housing and Communities (DLUHC); this is to ensure that they are correctly scaled to represent the population.
- These estimates are subject to a margin of error as they are partly based on survey data and there is a level of variability across input data sources.
- The entire back series of data will be revised annually as part of each new release.

4 . Quality summary

In this publication, we produce estimates on the tenure breakdown of households and dwellings at the local authority level. There are three main types of tenure for which households and dwellings can be categorised: owner-occupied, privately rented and socially rented, plus we are able to split the owner-occupied category.

For households, we produce data on four categories of tenure: owned outright, owned with a mortgage or loan, private rent and social rent. For dwellings we produce estimates on three categories of tenure: owned outright, owned with a mortgage or loan and private rent, as the Department for Levelling Up, Housing and Communities (DLUHC) produce data on [socially-rented dwellings for local authority districts](#) in England.

Estimates are derived using a mixture of recent survey and administrative data with out-of-date census data on tenure. Data are combined using a [Generalised Structure Preserving Estimator \(PDF, 2.26MB\)](#) (GSPREE) method, which provides a framework for estimating population characteristics in non-census years when such comprehensive data are not available. We produce an article, along with two datasets in this publication. The datasets contain counts and percentages of the tenure breakdown for both dwellings and households in English local authority districts.

Annual estimates of dwellings and households by tenure provide evidence to help planning authorities set housing policy and allows them to monitor the distribution of tenure over time within an area and between areas. Estimates of dwellings by tenure are used to inform the sampling and adjustment of data collected about the private rented sector.

Uses and users

The main users of our subnational tenure estimates have been identified as the following:

- central government: monitoring housing trends in tenure at a local scale, to understand how the housing market is being used; they could also feed into policy-making such as Help-to-Buy
- local government: monitoring trends and changing distribution in tenure in their local authorities, which can inform housing policies being set in each area
- government departments: the estimates provide information that helps the sampling and adjustment of data collected about the private rented sector
- housing industry specialists: these include organisations such as large estate agents seeking information on subnational housing trends
- housing bodies: these include organisations such as the Home Builders Federation and charities that carry out secondary analyses of official housing statistics

Strengths and limitations

The main strengths of the subnational tenure estimates

These data provide users with a valuable insight into the breakdown of tenure at the local authority level of both households and dwellings in England. This data fills a gap in available statistics, as it is the only published data that provides a breakdown of tenure for dwellings within the private sector at this granularity. This is also the only dataset that provides the tenure breakdown for households at a local authority level in non-census years.

Dwellings estimates are constrained to [National Statistics](#) available on the total number of dwellings in each local authority, and the total number of dwellings in each tenure at the country level. DLUHC produce the number of [socially-rented dwellings for local authority districts](#) in England, which we use for this tenure at the dwellings level. This ensures consistency across available datasets.

Counts and percentages are produced using the same methods for all local authority districts in England, and we revise the entire back-series with each annual publication. This allows comparisons to be made in a given area over time, and across local authority districts. When revising the counts and percentages annually we use the latest local authority district boundaries for the full time series, to reflect changes to boundaries and names.

The main limitations of the subnational tenure estimates

The subnational tenure estimates are produced using available information on tenure at the local authority level from a range of survey, administrative and census data. The estimates are subject to a margin of error as the estimates are partly based on survey data and there is a level of variability across data sources. The survey data taken from the Annual Population Survey (APS) are based on a sample and are therefore less precise than a comprehensive survey, such as the Census, that attempts to cover everyone. As such, there is a margin of error attached to these estimates, which for some local authorities and tenure categories can be quite large. The more variability there is in tenure estimates across datasets, the larger are the margin of error attached to these estimates.

Owing to the coronavirus (COVID-19) pandemic, data collection for the Annual Population Survey (APS), which we use to model the split in tenures, shifted from face-to-face and telephone interviewing to solely telephone interviewing from March 2020. This means there is expected to be some unmeasured uncertainty for our 2020 tenure estimates. More information about the [impact of changes made to data collection in response to the coronavirus \(COVID-19\) pandemic](#), and the methods used to adjust the data can be found on the Office for National Statistics (ONS) website.

5 . Quality characteristics of the subnational tenure estimates

This section provides a range of information that describes the quality of the data and details any points that should be noted when using these statistics.

Relevance

Subnational tenure estimates are produced for local authority districts in response to demand for these statistics at this level of granularity.

We produce datasets that provide estimates of the tenure breakdown for both dwellings and households in English local authority districts. When using this data, it is important to consider which is most suitable for the purpose. If the user is interested in tenure estimates based on the people who live in properties, households would be the more useful measure. If the user is interested in the number of physical units of accommodation (including those that are vacant) available to be taken up by each of the tenure types (total dwelling stock), then dwellings would be more suitable.

Accuracy and reliability

These estimates are subject to a margin of error as they are partly based on survey data and there is a level of variability across input data sources. Therefore, users of these statistics should refer to the [coefficient of variation](#) (CV) and [confidence intervals](#). These provide a measure of the [uncertainty](#) around the estimates, which should be considered when making interpretations. In the article, differences and changes described are those that are considered significant, in cases where the 95% confidence intervals do not overlap.

Coherence and comparability

The Department for Levelling Up, Housing and Communities (DLUHC) produce National Statistics on the number of dwellings by tenure for local authority districts in England in [Table 100](#). This data does not provide a split of the private sector into owner-occupied and privately rented dwellings but provides an indication on the number of dwellings in the private sector, social rent sector and the total number of dwellings. We constrain our estimates of owner-occupiers and private renters to the private sector stock published and take the number of socially rented dwellings directly from the DLUHC to ensure coherence across data sources.

Information on tenure can be found for other UK countries, but the methods used to produce estimates on tenure vary:

Wales

[Dwelling stock estimates by local authority and tenure](#)

The Welsh Government publishes annual statistics on dwelling stock by tenure, which provide a breakdown of owner-occupied, privately rented and social housing stock for local authorities. These estimates are produced using survey data from the Labour Force Survey (LFS), and do not make any adjustments for vacant dwellings so are not comparable to our estimates.

Scotland

[Estimated stock of dwellings by tenure](#)

The Scottish Government produces estimates of the stock of dwellings by tenure and local authority on an annual basis, which also breaks down the private sector into owner-occupied and privately rented dwellings. Since 2001, data have been included on vacant dwellings, but this is only available for the private sector as a whole. Therefore, the percentages given for owner-occupied and privately rented dwellings do not account for vacant dwellings.

Northern Ireland

[Household tenure](#)

The Department for Communities - Northern Ireland produces statistics on household tenure at the national level, where a breakdown of owner-occupied and rented households is available, but no distinction can be made between private and social rent.

Accessibility and clarity

Our recommended format for accessible content is a combination of HTML web pages for narrative, charts and graphs, with data being provided in usable formats such as Excel. Our website also offers users the option to download the narrative in PDF format. In some instances, other software may be used, or may be available on request. Available formats for content published on our website but not produced by us, or referenced on our website but stored elsewhere, may vary. For further information, please contact us by email at: better.info@ons.gov.uk.

For information regarding conditions of access to data, please refer to [terms and conditions \(for data on the website\)](#) and [accessibility](#).

In addition to this quality and methodology information report, basic quality information relevant to each release is available in the Data sources and quality section of the relevant article.

Timeliness and punctuality

The Annual Population Survey (APS) is collected for January to December each year and results are typically available for analysis in July the following year. However, owing to complications caused by the coronavirus (COVID-19) pandemic, in 2021 the release of APS results was delayed until the autumn.

Occupancy rate data from the English Housing Survey are published in December each year. If the occupancy rate is not available for the latest year of data we publish at the time of our publication, we apply the previous years' rates to the estimates, and revise this with our next annual publication. DLUHC publish the live tables on dwelling stock in May each year.

We attempt to release these statistics in November in the year which follows the year the data refers to (that is, 2019 data published in November 2020). However, our 2019 and 2020 data were delayed because of disruption related to the coronavirus (COVID-19) pandemic.

For more details on related releases, the [GOV.UK release calendar](#) provides up to 12 months' advance notice of release dates. In the unlikely event of a change to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the [Code of Practice for Statistics](#).

Why you can trust our data

The Office for National Statistics (ONS) is the UK's largest independent producer of statistics and its national statistics institute. The [Data Policies and Information Charter](#), available on the ONS website, detail how data are collected, secured and used in the publication of statistics. We treat the data that we hold with respect, keeping it secure and confidential, and we use statistical methods that are professional, ethical and transparent.

Input data sources used to produce our subnational tenure estimates have all been designated [National Statistics](#) status by the UK Statistics Authority in accordance with the [Statistics and Registrations Service Act 2007](#).

6 . Methods used to produce the subnational tenure estimates

Main data sources

The data used to produce the subnational tenure estimates are provided by the Office for National Statistics (ONS) and the Department for Levelling Up, Housing and Communities (DLUHC).

Annual Population Survey

The Annual Population Survey (APS) is a continuous household survey administered by the ONS, covering the UK, with the aim of providing estimates of social and labour market variables at a local area level. The APS is not a stand-alone survey, but uses data combined from two waves of the main [Labour Force Survey \(LFS\)](#) with data collected on a local sample boost. Apart from employment and unemployment, the topics covered in the survey include housing, ethnicity, religion, health and education.

The achieved sample size typically averages 320,000 respondents. However, the sample size of the 2020 release of the APS was around 270,000 respondents. Unweighted household level data from the APS is used to calculate the number of households which fall within each tenure category as an input data source in the Generalised Structure Preserving Estimator (GSPREE) model. Weighted counts from the APS are used to produce row and column margins for the household estimates. These are the total number of households by local authority, and the total number of households by tenure by country. Data used in this publication refers to the survey months January to December for each year.

Owing to the coronavirus (COVID-19) pandemic, it was necessary for the Labour Force Survey (LFS), from which Annual Population Survey (APS) data are derived, to shift from face-to-face and telephone interviewing to solely telephone interviewing from March 2020. This was associated with a shift in sample composition – including a notable decrease in the proportion of respondents living in private rented dwellings and increase in those living in dwellings owned outright. The Office for National Statistics (ONS) added housing tenure to the weighting process to mitigate the impact of potential non-response bias caused from this operational change.

The detail of the changes to the survey is set out in [Update to Coronavirus – impact on labour market outputs and Coronavirus and its impact on the Labour Force Survey](#), which reported that "the estimates we have produced across the range of variables that we have looked at appear to be more consistent and credible with other external information and expectations, than those produced without the use of tenure within the weighting".

This means there is expected to be some unmeasured uncertainty for our 2020 tenure estimates, and so year-on-year changes should be taken with additional caution. More information about the [impact of changes made to data collection in response to the coronavirus \(COVID-19\) pandemic](#), and the methods used to adjust the data can be found on the ONS website.

Further information on the APS can be accessed via the [Quality and Methodology Information Report](#) or by emailing socialsurveys@ons.gov.uk.

2011 Census

The census provides a once-in-a-decade opportunity to get an accurate, comprehensive and consistent picture of the most valuable resource of England and Wales - its population. The census provides the only source of directly comparable statistics for both small areas and minority population groups across England and Wales. It is used as a 10-yearly benchmark for our annual mid-year population estimates (MYEs), which are vital to central and local government for planning, monitoring and resource allocation.

Tenure breakdowns at the household level are available for a range of geographies, as at Census Day on 27 March 2011. Although the data is out-of-date, it can still provide useful information as a proxy dataset to estimate tenure in our GSPREE model.

We will use data from the 2021 Census once it becomes available, likely in late 2022.

English Housing Survey

The English Housing Survey (EHS) is a national survey conducted by DLUHC, based on households' housing circumstances in England. When the interviewers visit a dwelling to survey, the interviewer assesses whether it is vacant, and clarification is sought from neighbours. A dwelling is classified as vacant if the dwelling is in-between lets or vacant for a longer period. Surveyors are then required to gain access to any dwelling believed to be vacant, to undertake full inspections. As a result, occupancy rates by tenure, region and year are available from the EHS.

These occupancy rates are used to adjust the owner-occupied and privately rented household stock derived from the APS and the 2011 Census, to estimate the total number of dwellings within each tenure category, rather than just the total number of occupied dwellings. As the EHS only includes owner-occupied occupancy rates and does not provide a split into owned outright or owned with mortgage or loan, we apply the same rate to both. It is important to make the occupancy rate adjustment by tenure, as the likelihood of a privately rented dwelling being vacant is usually higher than for owner-occupied dwellings. Occupancy rates change over time and across geographical areas.

The latest year that the occupancy rates are available for is 2019, so we applied the 2019 occupancy rates to the 2020 data. In future publications this will be revised so that, where available, the relevant years' occupancy rates are included.

For more information on the EHS, see the [publication](#).

Live tables on dwelling stock (including vacants)

National Statistics on [live tables of dwelling stock](#), produced by DLUHC are used as row and column margins for the estimates on dwellings by tenure. These are the total number of dwellings in each local authority (Table 100) and the total number of dwellings in each tenure at the country level (Table 104).

How we produce the estimates

To estimate the number of households and dwellings that fall within each tenure category at the local authority level we use the [Generalised Structure Preserving Estimator \(PDF, 2.26MB\)](#) (GSPREE) method. The GSPREE method uses small area estimation techniques to combine and draw strength from several data sources.

For estimates at the household and dwellings level, 2011 Census data is supplemented with social survey data from the Annual Population Survey (APS) to generate more reliable and complete estimates than it would be possible to generate from each source individually. As the input data sources are household level datasets, an occupancy rate adjustment needs to be applied to them to provide an indication of the number of dwellings. Before the GSPREE model is run to produce our dwellings estimates, 2011 Census data and unweighted tenure counts from the 2012 to 2020 APS data are divided by the regional occupancy rate for each tenure and year taken from the English Housing Survey (EHS). These are then used as the input data sources for the dwellings model.

Tenure cross-tabulation estimates are adjusted in line with robust and recent statistics known as row and column margins, to obtain the improved "best" estimate of the target cross tabulation structure. The GSPREE method requires the sum of the row margins to equal the sum of the column margins. As we are focusing on local authority level estimates, the column margins are scaled so they sum to be in line with the row margins, if this is not already the case.

For more information on the GSPREE process, see [Explaining the Generalised Structure Preserving Estimator](#).

Comparing households and dwellings

Alongside the article we publish data on subnational tenure estimates for both households and dwellings. We produce the estimates for dwellings and households in different ways.

There are four main factors that explain the differences in these estimates at the local authority level.

Vacant dwellings

- the total number of dwellings includes those that are vacant, whereas the total number of households account for vacant dwellings
- input data sources (APS and 2011 Census) are household surveys, so they only cover dwellings that are occupied and do not provide any data on vacant dwellings
- to produce our measures on dwellings, we make an adjustment by dividing our survey-based data sources by regional occupancy rates taken from the English Housing Survey (EHS) for each year; no occupancy adjustment is made for household level data
- when making an adjustment to household level input data sources, to provide a measure of dwellings, it requires an assumption that households sampled in the surveys are equivalent to dwellings with only one household per dwelling; this may not always be the case however, as it is possible for a dwelling to contain multiple households and the households to be in different tenures

Social rent

- we do not include the social rent tenure in our GSPREE model for dwellings, so only model the private sector; we model the private sector tenure of dwellings at the local authority district level as the split of the private sector (owned outright, owned with a mortgage or loan and privately rented) is not currently available in any annual data sources
- the social rent statistics we present in our dataset are taken directly from the Department for Levelling Up, Housing and Communities (DLUHC); this is because DLUHC produce National Statistics on the number of socially rented dwellings by local authority districts. We consider these to have higher accuracy as they are based on data returns provided by local authorities and housing associations; these can be found in Table 100
- national and regional social rented household estimates are available from the English Housing Survey, Labour Force Survey and Census; however, as there are no annual statistics available on the number of socially rented households at local authority level, we produce social rent tenure estimates using the GSPREE model for households

Total number of households and dwellings at the local authority level:

- the total number of dwellings, and number of dwellings in the private sector at the local authority level are taken from DLUHC Table 100
- the total number of households at the local authority level is estimated using weighted totals from the APS
- there are two main contributors to differences in the household and dwelling stock at the local authority level:
 - the total number of dwellings includes those that are vacant. Households are not counted in vacant dwellings
 - there are some cases in which multiple households live in a singular dwelling; the result is that households and occupied dwellings do not have a one-to-one relationship
- our estimates have shown that it is more common for a local authority district to have a higher total number of dwellings than households; a possible reason for this is that it is more common to have a higher number of vacant dwellings than singular dwellings occupied by multiple households

Total number of households and dwellings by tenure at the country level:

- the total number of dwellings by tenure at the country level are taken from DLUHC [Table 104](#)
- the total number of households by tenure at the country level are taken using weighted tenure totals from the APS

How we analyse and interpret the data

Analysis in the article refers to estimates on dwellings rather than households. The statistics presented are subject to a margin of error as the estimates are partly based on survey data and there is a level of variability across input data sources. Therefore, users of these statistics should refer to the coefficient of variation (CV) and confidence intervals – which provide a measure of the uncertainty around the estimates – when making interpretations. As such, changes described in the article are those which we consider statistically significant as the confidence intervals do not overlap.

How we quality assure and validate the data

Rigorous quality assurance is carried out at all stages of the data production process. Specific procedures include:

- the input data sources have quality assurance processes in place before the data are published
- once the subnational tenure estimates are produced, the process of collecting and producing the input data sources is reproduced by another individual; the data are then compared to ensure correct data are produced
- visual checks are carried out on the output tables to ensure there are no errors or inaccuracies
- thoroughly checking the data input into charts, tables and in the text of the article is consistent with the data in the main datasets

How we disseminate the data

Subnational tenure estimates can be downloaded free of charge in Microsoft Excel format. An article accompanies each publication. The underlying data for the charts and tables in the article can be downloaded. Links from the [GOV.UK release calendar](#) make the release date and location of each new set of subnational tenure housing affordability publications clear.

Any additional enquiries regarding subnational estimates of dwelling and household stock can be made by emailing better.info@ons.gov.uk.

7 . Useful links

[Subnational estimates of dwellings and households by tenure, England: 2020](#)

Article | Released: 31 January 2022

Estimates which provide the breakdown of dwellings and households by tenure, for local authority districts in England, on an annual basis.

[Housing statistics and English Housing Survey glossary](#)

Webpage | Released: 15 January 2019

Glossary of terms and definitions used in Department for Levelling Up, Housing and Communities (DLUHC) housing statistical publications and English Housing Survey reports.

[Research Output: Alternative estimates of subnational dwelling stock by tenure: 2018](#)

Research Output | 27 November 2019

Exploring an alternative method that uses a range of data sources to produce subnational dwelling stock by tenure estimates in England and Wales. This research output is not an official statistic.

[Alternative dwelling stock by tenure estimates](#)

Dataset | 27 November 2019

Previous release on the number and percentage of dwellings by tenure, for local authorities in England and Wales, using an alternative method. These research outputs are not official statistics on dwelling stock by tenure.

