

# Housing affordability in England and Wales QMI

Quality and methodology Information for housing affordability in England and Wales, detailing the strengths and limitations of the data, methods used and data uses and users.

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# 1 . Output information

<b>National Statistic</b>	No
<b>Data sources</b>	House price statistics for small areas (HPSSAs) Annual Survey of Hours and Earnings (ASHE)
<b>Frequency</b>	Annual
<b>How compiled</b>	Administrative and survey data
<b>Geographic coverage</b>	Subnational geographies in England and Wales: <ul style="list-style-type: none"><li>• country</li><li>• region</li><li>• county</li><li>• local authority district</li></ul>
<b>Related publications</b>	<a href="#">House price statistics for small areas (HPSSAs)</a> <a href="#">Annual Survey of Hours and Earnings (ASHE)</a> <a href="#">Research Output: Alternative measures of housing affordability</a>
<b>Last revised</b>	25 March 2024

## 2 . About this Quality and Methodology Information report

This quality and methodology information report contains information on the quality characteristics of the data (including the European Statistical System five dimensions of quality), 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

- Statistics include house prices, earnings and the affordability ratio for a range of geographies between local authority district and country level in England and Wales.
- Because we divide house prices by earnings, a larger housing affordability ratio means that an area is less affordable, while a smaller ratio means that an area is more affordable.
- Previously, house prices were taken from House price statistics for small areas (HPSSAs) datasets; from 2023, these were discontinued but a limited selection of HPSSA datasets are still published with this affordability release.
- House prices refer to the price paid for residential property in England and Wales. This means that the prices are not fully comprehensive for all housing in England and Wales, as they only include those that have transacted at full market value.
- Earnings are taken from the Annual Survey of Hours and Earnings (ASHE) and refer to the gross annual earnings for full-time workers. The earnings are therefore based on individuals and only account for those who work full-time.
- There are [seven housing affordability datasets](#) available. These contain housing affordability data for new dwellings, existing dwellings and all dwellings combined, which are available on a workplace basis and on a place of residence basis.
- From the 2023 release, some datasets from the discontinued HPSSAs are now published alongside the seven affordability datasets.
- Workplace-based housing affordability ratios are the main measure of housing affordability, and provide an indication of how affordable it is to purchase residential property in the same area as an employee works.
- HPSSAs can be revised every six months, but the annual affordability ratio statistics will not be revised to reflect this, instead the entire back series will be revised annually as part of each new release.
- The latest year's earnings data are provisional and are revised with the following release.
- The earnings estimates in this analysis include furloughed employees and are based on actual payments made to the employee from company payrolls and the hours on which this pay was calculated, which in the case of furloughed employees are their usual hours; further information is available in the [Employee earnings in the UK](#) release.

## 4 . Quality summary

## Overview

The housing affordability statistics are derived from House price statistics for small areas (HPSSAs), which usually provide the median and lower quartile price paid for residential properties in England and Wales, and earnings data from the Annual Survey of Hours and Earnings (ASHE), which provides the median and lower quartile gross annual full-time individual earnings.

In 2023, lower quartiles were not calculated for HPSSAs as well as for this publication. We intend to assess demand for these tables in future releases.

We produce a [statistical bulletin](#), along with [seven housing affordability datasets](#) in this publication. The datasets contain affordability data for newly-built dwellings, existing dwellings and all dwellings combined, which are available on a workplace or place of residence earnings basis. We produce these statistics on countries, regions, counties and local authority districts in England and Wales. HPSSA files accompanying this release from the 2023 update include Westminster Parliamentary Constituencies and Middle layer Super Output Areas (MSOA), for which affordability statistics are not also released.

These housing affordability statistics are used by housing policy-makers, including central and local government. In particular, the workplace-based measures of housing affordability are used for [assessing local housing needs](#) and in the creation and monitoring of local housing plans.

The HPSSA datasets also have their own [Quality and Methodology Information \(QMI\) report](#).

## Uses and users

The main users of our housing affordability ratios have been identified as the following:

- central government: monitoring housing trends, supply and demand, policy-making such as schemes for first-time buyers
- local government: monitoring and developing housing policies and affordability of housing to meet the current and future needs of their areas and to understand how changes and policies at the national level affect housing at the local authority level; determine the need of what type or price of property is required in the area so people can better afford housing
- other private sector organisations: property investors and financial management companies may also use these data to assess affordability of investments
- devolved administrations: supporting policy-making and monitoring changes at the country level, similar to those requirements of central government; also used for comparisons with wider UK policies
- banks and building societies: house price and affordability statistics are used for mortgage lending to make decisions on whether to lend, how much to lend and setting interest rates; earnings data are also useful to inform mortgage lending to see how much of people's earnings are needed to spend on mortgages and how long is needed to pay them off
- house builders: these users are interested in whether and where demand for new housing exists, how much people are likely to be able to afford to spend on a property in a given area and the returns received on homes built and converted
- housing industry specialists: these include organisations such as larger estate agents seeking information on subnational housing affordability 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 affordability ratios**

These data provide users with a valuable insight into the changing patterns of housing affordability. Affordability ratios are produced using the same methods for all geographical areas in England and Wales, which means the ratios are fully comparable throughout the time series going back to 1997. This allows comparisons to be made in a given area over time, and across geographical areas.

These affordability ratio statistics are also revised annually for the full time series, to reflect revisions to the house price data in the House price statistics for small areas (HPSSAs) and earnings data in the Annual Survey of Hours and Earnings (ASHE). This ensures the most up-to-date complete data are included in the ratios.

The house price data used are based on the price paid for residential property, from Land Registry Price Paid data. It is a statutory requirement for all relevant details to be sent to the Land Registry whenever a person transfers ownership of a property or takes a mortgage out against it. This change must be registered with the Land Registry to make it legally effective, which means this is comprehensive of the price paid for residential properties.

### **The main limitations of the affordability ratios**

Earnings data used to calculate affordability ratios are taken from a survey. This means that these statistics are estimates based on a sample of earnings data and are therefore less precise than if the survey covered everyone. It is best to interpret these statistics over a longer time series to assess changes in housing affordability trends.

Official statistics on overall household income are not available for all geographical areas presented in these statistics, so earnings data for individuals are used. The estimate of affordability does not account for all income as it uses gross earnings of full-time employees, drawn from a sample of HM Revenue and Customs Pay as You Earn (PAYE) records. Income recorded through Self Assessment (including income received from self-employment, property rental and investments) and earnings from part-time workers are not included in our measures.

The house price data used to create the affordability ratio estimates are based on the price paid for residential property only, so are not fully comprehensive for all housing in England and Wales as they only include those that have transacted.

## Recent improvements

The housing affordability estimates transferred from the Department for Levelling Up, Housing and Communities (DLUHC) to the Office for National Statistics (ONS) for the March 2017 publication. This has helped bring together datasets that the ONS already produces: House price statistics for small areas (HPSSAs) and the Annual Survey of Hours and Earnings (ASHE).

With the transfer of statistics, the methodology was revised with slightly different definitions for affordability being agreed. The DLUHC formerly published affordability ratios on workplace-based earnings only and also used annualised weekly earnings. The ONS publishes both workplace-based and residence-based affordability ratios, based on annual earnings, but annualised weekly earnings if annual earnings are not available and weekly earnings are. The ONS has also included data for additional geographies as a result of user needs, which are regions and counties. Housing affordability ratios are therefore now provided for different geographies on a consistent basis.

Since the publication released on 28 March 2019, we have included four new datasets, which provide the workplace- and residence-based ratios for newly-built and existing dwellings. This allows a further breakdown of affordability, based on the type of residential property the house price refers to.

As part of the 2021 publication, we have included an additional dataset that provides the workplace based ratios for former local authority geographies.

In our latest statistical bulletins, we describe changes to affordability. This considers the [uncertainty](#) around the survey data used for earnings, to calculate the ratios. This helps users to interpret whether changes are likely to reflect real changes and trends, or reflect the uncertainty in the underlying data. For more information on calculating significant changes, please see the [Accuracy and reliability](#) section of this report.

In our [Research Output: Alternative measures of housing affordability](#), we explored several options, some resulting in additional publications. These consider affordability in relation to:

- [house purchase affordability](#): ratio of house price deciles to disposable household income deciles
- upfront costs involved with purchasing a residential property
- monthly mortgage repayment affordability
- [private rental affordability](#)
- purchase affordability for small areas (Middle-layer Super Output Areas)

We continue to review feedback and improve these additional measures of affordability to help determine whether to produce the measures on a regular basis. We continue to explore if local-level versions of these measures could be produced, and investigate the possibility of expanding the analysis presented here to cover all countries of the UK.

## 5 . Quality characteristics of the housing affordability in England and Wales data

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

Affordability ratios are produced for national and some subnational geographic areas, such as regions, local authority districts and counties in response to demand for these statistics. Affordability ratios are produced over time, from 1997 for workplace-based affordability, and from 2002 for residence-based affordability. This is a sufficiently long time series, which enables comparisons to be made over time to assess trends and changes in affordability.

This release usually contains statistics for both median and lower quartile house prices, annual earnings and affordability ratios. This helps users see what the average housing affordability is for a given area and provides an indication of "entry-level" property prices and affordability for those looking to purchase low- to mid-priced properties.

It is important we provide the most relevant and stable ratios for subnational geographies, because the median workplace-based measures of housing affordability are used in local authorities' [housing needs assessments](#).

## Earnings multiples and affordability thresholds

This methodology uses five times earnings as a general indicator of an affordable property price. This reflects two conventions:

- mortgages have traditionally been offered at multiples of four to five times income (typically gross income)
- since 2014, the [Bank of England have instructed the Financial Conduct Authority \(FCA\)](#) to "ensure that mortgage lenders do not extend more than 15% of their total number of new residential mortgages at loan to income ratios at or greater than 4.5"

While income multiples are not capped at five, the [FCA mortgage lending statistics', Mortgage Lending and Administration Return \(MLAR\) statistics: detailed tables](#) shows that only a minority of lending goes above multiples of four times household income.

Therefore, a multiple of five times earnings broadly fits with both traditional expectations and current mortgage market practices. Conversely, mortgage lenders may be lending based on multiples of gross income, so a multiple of five times earnings is a conservative estimate of affordability. Furthermore, it makes the release consistent with our income-based [Housing purchase affordability, UK statistical bulletins](#).

## Accuracy and reliability

The housing affordability statistics are calculated using data on house prices from the House price statistics for small areas (HPSSAs), and data on earnings from the Annual Survey of Hours and Earnings (ASHE).

House price data in the HPSSAs are taken from the Land Registry's (LR) Price Paid data. Registration of a property transaction with the LR is compulsory for all changes of ownership except leases with less than seven years to run. Solicitors acting for purchasers invariably register the transaction as quickly as possible after completion. It is the view of the LR that under-recording is negligible. Therefore, such under-recording is unlikely to affect the statistics significantly.

The LR Price Paid data used in the HPSSAs are taken directly from the sale contract and are audited. Deliberate misreporting of price in this documentation would in most cases be fraud and is likely to be insignificant in volume. To minimise errors occurring in transcription, the LR has quality control procedures to check for exceptions in the data capture process, such as price band and application type.

The LR Price Paid data contain records of each completed and registered residential dwelling transaction. Recent transactions can be registered with the LR after the publication of the Price Paid data and so are not included in the HPSSAs. This is known as registration lag and is predominantly the case for transactions that occurred in the most recent quarter.

For example, for statistics relating to the year-ending quarter June 2015, it is the second quarter (April to June) of 2015 that is most likely to contain transactions that were not registered and included in the Price Paid data at the time it was published. Therefore, in this instance, the number of house sales for the year ending June 2015 in our HPSSAs is lower than the actual number of house sales that took place during this time. However, when the next data are published (year ending September 2015), all previous periods (including year ending June 2015) will be updated to reflect any additional registrations for transactions that took place during those previous periods. This means the effect of registration lag on the HPSSAs is minimised as much as possible.

Registration lag does not affect a sufficiently large enough number of records to influence the house price statistics in the HPSSAs, nor is it thought to affect one house type more than any other and so a formal process of revision is not employed.

The LR Price Paid data do not include all transactions of newly-built properties. For some types of newly-built properties, such as buildings that have been converted from commercial use to residential use and very small new housing developments, the Price Paid data may not list these as transactions of newly-built properties.

The earnings data used to calculate the affordability estimates are annual earnings primarily, and annualised weekly earnings if annual earnings are not available, but weekly earnings are. This decision was made as weekly earnings can be relatively unstable over time and across areas, as some areas have a greater number of seasonal employees than others. This can affect the median earnings data at different points in the year, so we use annual earnings where possible, to provide more stable ratios. Previously, when the housing affordability estimates were produced by the Department for Levelling Up, Housing & Communities (DLUHC), annualised weekly earnings were used for all ratios.

The ASHE estimates are subject to various sources of error. Total error consists of two elements: the sampling error and the non-sampling error.



## Sampling error

[Sampling error](#) occurs as estimates are based on a sample of the population rather than the entire population. Earnings data are taken from the Annual Survey of Hours and Earnings (ASHE), which is a survey based on a sample of employee jobs, so the data are less precise than if the survey covered everyone. The sample is designed to be as accurate as possible given practical limitations such as time and cost constraints, but results from sample surveys are always estimates, with a degree of [uncertainty](#).

In the ASHE datasets, the sampling error is estimated through providing the [coefficient of variation \(CV\)](#), which is the ratio of the [standard error \(SE\)](#) of an estimate to the estimate itself, expressed as a percentage. Generally, if all other factors are constant, the smaller the CV the higher the quality of the estimate.

The CVs are presented alongside the outputs in the original ASHE datasets and use colour coding as a quick reference guide to the CV of the estimates: estimates with CVs less than or equal to 5% are published with no colour fill; estimates with CVs between 5% and 10% are published with a light green background; estimates with CVs between 10% and 20% are published with a dark green background; cells for which estimates have been suppressed on quality or disclosure grounds are also filled in dark green.

This means that the housing affordability ratios presented are subject to some uncertainty. This can have an impact on how changes in the estimates should be interpreted, especially for short-term comparisons. We produce affordability ratio estimates, even when the CV of the earnings data from ASHE is between 10% to 20%, and so it is important to consider the margins of error around the earnings estimates used to derive these housing affordability statistics.

We look at statistical differences over time by looking at the range of plus or minus twice the coefficient of variation around the estimate, as indicated in the ASHE datasets. For example, for estimated earnings of £30,000 with a CV of 5%, we would expect the true population average to be within the range £27,000 to £33,000. We then divide the median house price by the lower and upper earnings limits to derive lower and upper limit affordability ratios. The true value of earnings is likely to lie within these values. We use these ranges to determine if an area's affordability estimate has changed significantly.

## Non-sampling error

[Non-sampling error](#) occurs as there are known differences between the coverage of the ASHE sample and the target population (all employee jobs), as jobs that are not registered on PAYE schemes are not surveyed. These jobs are known to be different from the Pay As You Earn (PAYE) population in the sense that they typically have low levels of pay. Consequently, ASHE estimates of average pay are likely to be biased upwards with respect to the actual average pay of the employee population.

Non-response bias may also affect ASHE estimates. This may happen if the jobs for which respondents do not provide information are different from the jobs for which respondents do provide information. For ASHE, this is likely to be a downward bias on earnings estimates since non-response is known to affect high-paying occupations more than low-paying occupations.

Finally, ASHE results tables do not account for differences in the composition of different "slices" of the employee workforce. For example, figures for the public and private sectors include all jobs in those sectors and are not adjusted to account for differences in the age, qualifications or seniority of the employees or the nature of their jobs, all factors that may affect how much employees earn.

Various procedures are in place to minimise errors in returned data. Returns undergo a range of checks, which include validation against previous returns and expected values, selective editing (a technique for prioritising suspicious values for follow-up based on their impact on published results) and re-contacting businesses for verification.

## Coherence and comparability

The Department for Levelling Up, Housing and Communities (DLUHC) previously produced affordability ratios in [Tables 576 to 578 \(XLSX, 359KB\)](#) with a time series back to 1997. However, the data produced in previous years are not directly comparable with our affordability ratios in this release. This is because the housing affordability ratios presented in this release use slightly different definitions, which have been agreed since the last DLUHC affordability ratio publication.

The DLUHC formerly published affordability ratios on workplace-based earnings only and also use annualised weekly earnings. We publish both workplace-based and residence-based affordability ratios, based on annual earnings, but annualised weekly earnings if annual earnings are not available and weekly earnings are. Both use full-time earnings only. Our affordability ratios differ from DLUHC's statistics, but we have updated the time series so comparisons can be made over time with our data. Our affordability ratios are fully comparable throughout the time series going back to 1997 because a single method was used to produce the statistics for all available periods and geographies.

The data used to calculate housing affordability come from the House price statistics for small areas (HPSSAs), in order to maintain consistency, as far as possible, with both the previously published DLUHC housing affordability statistics and with the neighbourhood housing affordability statistics, which also use the HPSSAs.

The HPSSAs show the median price actually paid for residential property on a non mix-adjusted basis. These figures are used in the calculation of housing affordability to maintain consistency, as far as possible, with both the previously published DLUHC housing affordability statistics and with the neighbourhood housing affordability statistics, which also use the HPSSAs. However, house price statistics are also available from the [UK House Price Index](#), which provides statistics on the average value of UK properties at the country, regional and local authority district level. These statistics are the main measure of housing market change in the UK, adjusted to take account of the mix of different property types and characteristics. Therefore, they provide different figures to the HPSSAs for these geographies.

There are no other official statistics on housing affordability in England and Wales and equivalent house price to earning ratios for Scotland and Northern Ireland do not exist.

## Accessibility and clarity

(Accessibility is the ease with which users are able to access the data, also reflecting the format in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the release details, illustrations and accompanying advice.)

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](mailto:better.info@ons.gov.uk).

For information regarding conditions of access to data, please refer to the links:

- [terms and conditions \(for data on the website\)](#)
- [accessibility](#)

In addition to this Quality and Methodology information report, basic quality information relevant to each release is available in the Measuring the data section of the relevant statistical bulletin.

## Timeliness and punctuality

The Annual Survey of Hours and Earnings (ASHE) is completed in April each year and provisional results for ASHE are published six months later in October of the same year. New information can still be received subsequently to April, and these new data are inputted into the revised data, with the following annual publication.

The House price statistics for small areas (HPSSAs) publication can be produced and published within six months of the latest complete Price Paid data being published by the Land Registry, which itself is made available on a monthly basis. The Price Paid data is a complete record of registered residential property transactions, although additional registrations can occur after the first publication of the monthly Price Paid dataset. More information about this is available in the Accuracy and reliability section.

We use data for the year ending September of each year for the affordability ratios in this release because this is the mid-point of the year for ASHE data. This means that the HPSSA data are not available until six months later than September. We will co-publish the affordability ratios and HPSSAs referring to year ending in September of the latest year.

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](#).

## Concepts and definitions

### Median

The housing affordability ratios in this release report median housing affordability statistics. The median is the value determined by putting all the house prices or earnings for a given area and year in order of value and then selecting the value of the house price or earnings that falls in the middle, such that an equal number lie above and below that value.

The median is less susceptible to distortion by the presence of extreme values than is the mean. It is the most appropriate average to use because it best takes account of the skewed distribution of house prices and earnings.

### Lower quartile

The housing affordability ratios in the release usually also report lower quartile housing affordability statistics. The lower quartile is the value determined by putting all the house prices or earnings for a given area and year, in order of value and then selecting the value of the house prices or earnings that fall three-quarters of the way down the list, such that 75% lie above and 25% lie below that value. These are particularly useful for assessing housing affordability to indicate the entry level for first-time buyers. This measure was not available in 2023, and we are currently assessing demand for it in future releases.

## Geography

Housing affordability estimates are produced by the Office for National Statistics (ONS) for England and Wales, by country, region, county and local authority. The latest geography boundaries, names and codes are used for the entire time series. These can be found on the [Open Geography portal](#). This means the entire dataset is updated in line with the latest geography changes, so previous local areas that have experienced changes such as mergers with other areas, will not be shown on the datasets. If you require to access data for an area before it had changed, the previous year's publication will still contain the data we had published for the previous year.

We are unable to update the data before 2003 in line with the new geography codes. For these years (1997 to 2002) we report the data if there have been no geography changes from the specific year, to the current year. If there has been a geography change in an area over this time, we suppress the data. This is because of the data not representing the same area as used for the rest of the time series.

## Output quality trade-offs

(Trade-offs are the extent to which different dimensions of quality are balanced against each other.)

This output is not subject to scheduled revisions throughout the year, however, the raw data used to calculate these statistics can be revised to maintain the highest possible quality. We will update the entire time series with all revised data with the annual release of affordability ratios, so the data in this release may not always be the most up-to-date.

If a particular area contained fewer than five property sales in a given year, the median and lower quartile house prices are not reported in the House Price Statistics for Small Areas (HPSSAs). A minimum of five records is deemed necessary to produce a robust median house price, indicative of the prices in a particular area. This was agreed by our methodologists and has been standard practice with DLUHC in historic releases. This approach results in some areas lacking 100% coverage, particularly for the new build breakdown and the smaller geographic areas.

## Why you can trust our data

The 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.

The Annual Survey of Hours and Earnings (ASHE) has [National Statistics](#) status, designated by the UK Statistics Authority in accordance with the [Statistics and Registration Service Act 2007](#). These statistics were assessed as fully compliant with the [Code of Practice for Statistics](#). The House price statistics for small areas (HPSSAs) are [official statistics](#), which have not currently been assessed as fully compliant with the Code of Practice.

## 6 . Methods used to produce the housing affordability in England and Wales data

### Main data sources

All the data used to produce housing affordability ratios are provided by the Office for National Statistics (ONS). The housing affordability ratio estimates are derived by dividing house prices from the [House price statistics for small areas \(HPSSAs\)](#), by annual earnings from the [Annual Survey of Hours and Earnings \(ASHE\)](#).

### HPSSAs

The HPSSAs usually provide both the median and lower quartile price paid for residential properties in England and Wales. The HPSSAs make use of data that are provided by the Land Registry (LR), which is the organisation responsible to the Lord Chancellor for maintaining the Land Register, a record of land ownership in England and Wales. It is a statutory requirement for all the relevant details to be sent to the LR whenever a property changes ownership or a mortgage is taken out against it. Further information on the methodology of HPSSA data can be found in our [HPSSA Quality and Methodology Information \(QMI\) report](#).

Over half of the applications for registration are received electronically and the rest are on paper forms. Data received via paper forms are then keyed into an electronic register. The LR has provided the publicly available, open data used in the production of these statistics. The information covers information on the prices paid for residential dwellings in transactions that have occurred. This is known as Price Paid data.

Using these data, we calculate counts of transactions, median house prices and, usually, lower quartile house prices. The LR Price Paid data only include records for single residential properties sold for full market value (including sales made under the government's Help to Buy scheme). In order to avoid systematically biasing house price data, the LR excludes records of sales that were not at full market value. These are not included in the data from the LR and if included, would detract from a meaningful average house price figure.

All exclusions cover:

1. all commercial transactions, including operational farms
2. transfer, conveyances, assignments or leases at a premium with nominal rent which are:
  - “right to buy” sales at a discount
  - subject to a lease
  - subject to an existing mortgage
  - purchased with an identifiable buy to let mortgage
  - to affect the sale of a share in a property
  - by way of a gift
  - by way of exchange
  - under a compulsory purchase order
  - under a court order
  - to trustees
  - vesting deeds
  - transmissions or assents of more than one property
  - leases for seven years or less

## **ASHE**

ASHE is a survey that provides estimates of the median and lower quartile gross annual individual earnings for full-time workers. The ASHE survey uses a random sample of 1% of all employee jobs from HM Revenue and Customs' (HMRC's) Pay As You Earn (PAYE) system, taken in January of the reference year. It is a survey of employers with a reference date in April and asks about individuals who were employees at that time.

ASHE does not cover the self-employed, any jobs within the armed forces, nor does it cover employees not paid during the reference period. It does also not include the earnings of those who did not work a full week and whose earnings were reduced because of, for example, sickness.

Returned ASHE data are weighted to UK population totals from the Labour Force Survey (LFS) based on classes defined by occupation, region, age and sex. Since the introduction of weighting for ASHE data, the problem of item non-response (that is, where a questionnaire is returned by a respondent, but in an incomplete form) has become a consideration with regards to quality. A method of imputation, “donor imputation”, has been adopted to ensure sufficient quality of the earnings statistics. In this process, records with similar characteristics are sought to act as “donors” for missing variables. Further information on the methodology of ASHE data can be found in the [ASHE QMI report](#).

## How we process the data

Median and lower quartile house prices are taken from the HPSSAs for the relevant geographies for all, newly-built and existing dwellings. Median and lower quartile gross annual earnings for full-time workers are taken from ASHE for workplace-based and residence-based earnings. The earnings data from ASHE provide a snapshot of earnings at April in each year. The house price statistics from the HPSSAs report the price paid for residential property referring to a 12-month period with April in the middle (year ending September).

House prices are then divided by annual earnings, using the relevant data for the affordability ratios being created. Housing affordability ratios are derived from annual earnings where available, but annualised weekly earnings are used when annual earnings are not available from ASHE. When annualised weekly earnings have been used, they are recorded in bold grey font in the datasets.

Housing affordability ratios derived from annualised weekly earnings are comparable with affordability ratios derived from annual earnings, but can be relatively unstable over time and across areas because some areas have a greater number of seasonal employees than others. This can affect the median earnings data at different points in the year. Therefore, care should be taken when comparing a housing affordability ratio derived from annual earnings against a ratio derived from annualised weekly earnings.

Affordability ratios are calculated based on two measures of earnings. Workplace-based earnings refer to the earnings recorded for the area in which the employee works, whereas the residence-based earnings refer to the area in which the employee lives. The main analysis produced in statistical bulletins uses earnings data based on the place of work rather than the place of residence.

The smallest areas for which statistics are presented are local authority districts, of which there are 318 in England and Wales at time of writing. The largest area available is England and Wales overall. Other geographies for which statistics are published in this release are English regions and counties. In addition to the main tables, we also provide a reduced dataset for local authority (LA) areas that existed in 2018 and have since been reorganised but are still required for planning purposes.

## How we analyse and interpret the data

Housing affordability ratios are calculated by dividing house prices by earnings, therefore, a larger ratio means that an area is less affordable, while a smaller ratio means that an area is more affordable. The analysis in the statistical bulletins uses earnings data based on the place of work rather than the place of residence, unless otherwise stated. This measure of affordability indicates the extent to which employees can afford to live where they work, which is not necessarily where they already live.

There is a degree of [uncertainty](#) around the affordability ratios, as the earnings data are taken from a survey. This means these statistics are estimates based on a sample of earnings data and are therefore less precise than if the survey covered everyone. It is best to interpret these statistics over a longer time series to assess changes in housing affordability trends.

[Sampling error](#) in the earnings data is estimated through the [coefficient of variation \(CV\)](#) for each estimate. We have provided affordability ratios for all areas where data are available, even when the CV is above 20%, which is considered as unreliable for practical purposes. These can be accessed in the original [ASHE datasets](#). It is important to consider the margins of error around these earnings estimates used to derive the affordability estimates.

When looking at changes over time in an area, or differences between areas in terms of affordability, we can account for the degree of uncertainty around estimates. We look at statistical differences by having a range around the estimates in which the true affordability ratio is likely to lie within, and seeing whether these values overlap between the two ratios we are comparing. Significant differences in the housing affordability ratio does not necessarily mean that there are significant differences in earnings, but instead the earnings in relation to house prices at a given time is significantly different. Please refer to the Accuracy and reliability section for more information.

## How we quality assure and validate the data

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



- the input of data into the affordability ratios – [HPSSAs](#) and [ASHE](#) both have quality assurance processes in place before the data are published; refer to their Quality and Methodology Information reports for further information
- once the affordability ratio statistics are produced, the process of collecting the data and calculating the ratios are reproduced by another individual; the data are then compared to ensure correct data are produced
- comprehensive quality assurance checks, carried out on the output tables to ensure there are no errors or inaccuracies
- comparisons between local authorities are made, to check for outliers; data for any outliers are compared with previous years to see if this is consistent, and the reasons for them being outliers are understood
- thoroughly checking the data input into charts, tables and in the text of the statistical bulletin is consistent with the data in the main datasets

## How we disseminate the data

Housing affordability ratios are available online, by country, region, county and local authority district in England and Wales, since 1997. Links from the [GOV.UK release calendar](#) make the release date and location of each new set of housing affordability publications clear.

Housing affordability estimates can be downloaded free of charge in Microsoft Excel format. A statistical bulletin accompanies each publication. The underlying data for the charts and tables in the bulletin can be downloaded. Supporting documentation is also available on the [housing affordability webpage](#).

Most queries can be answered from the website datasets or supporting methods documents. Any additional enquiries regarding the affordability ratios can be made by emailing [better.info@ons.gov.uk](mailto:better.info@ons.gov.uk).

## How we review the data

The housing affordability estimates are revised with every publication for the full time series. This is required to reflect revisions to the house price data in the House price statistics for small areas (HPSSAs) and earnings data in the Annual Survey of Hours and Earnings (ASHE).

# 7 . Other information

## Useful links

- [House price statistics for small areas \(HPSSAs\)](#)
- [HPSSA Quality and Methodology Information \(QMI\) report](#)
- [Private rental affordability bulletin](#)
- [Housing purchase affordability bulletin](#)
- [Employee earnings in the UK bulletin](#)
- [Annual Survey of Hours and Earnings \(ASHE\) \(QMI\) report](#)
- [Income and earnings statistics guide](#)
- [Research Output: Alternative measures of housing affordability](#)

