Office for
National Statistics

Article

Admin-based housing stock profile for England and Wales: 2020

Summary statistics demonstrating the feasibility of producing census-like housing stock statistics using the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020.

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1 . Main points

- To explore the feasibility of using administrative data to provide more regular census-like housing statistics for occupied residential addresses across England and Wales, we have developed an admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020.

- The ABHS was produced by linking a residential Address Frame to Valuation Office Agency (VOA) data to obtain property characteristic information, and to the admin-based household estimates (ABHE) dataset to identify occupied addresses.

- Because of undercoverage in the ABHE, the ABHS identifies a lower proportion of occupied addresses (especially flats) than the 2011 Census, as detailed in our associated methodology article, Developing admin-based housing stock statistics for England and Wales: 2020.

- To demonstrate the potential utility of the ABHS, we present statistics for all addresses in the ABHS, alongside statistics for occupied addresses in the ABHS (using the ABHE to flag occupied addresses).

- The ABHS shows early promise as a new method to produce more frequent and granular statistics on housing characteristics for sub-regional geographies (currently local authorities), including information that has not previously been readily available (such as number of bathrooms).

- We seek to align these statistics to user needs as we receive feedback on the potential usefulness of these statistics.

These are not official statistics and should not be used for policymaking or decision-making. They are published as feasibility research into a new method for producing census-like statistics on housing using administrative data. We advise caution when using the data.

2 . About our transformation research

At the Office for National Statistics (ONS), we are exploring the feasibility of using administrative data to produce statistics on a range of housing topics. This has the potential to remove the need for us to collect data through a census or surveys and enable us to produce more frequent and granular statistics, as well as providing new analysis on housing topics not previously available. This may help housing planners and policymakers to better understand the characteristics of the dwelling stock in their areas, and therefore better meet the future housing needs of local residents (see our 2021 Census topic consultation).

This article presents summary statistics produced using the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020. The ABHS is being developed to explore the feasibility of using administrative data to provide more regular census-like housing statistics for occupied residential addresses (down to small geographies) across England and Wales. The ABHS was produced by linking a residential Address Frame to Valuation Office Agency (VOA) data to obtain property characteristic information, and to the admin-based household estimates version 2.0 and version 3.0 (ABHE V2.0 and V3.0) datasets to allow us to evaluate methods for identifying occupied addresses. For this article, occupied addresses are identified using the ABHE V3.0 (see Section 11). More information about the method used to produce the ABHS and why we selected ABHE V3.0 to identify occupied addresses can be found in our methodology article, Developing admin-based housing stock statistics for England and Wales: 2020.

This research forms part of our population and social statistics transformation programme, which aims to provide the best insights on population, migration and society using a range of data sources. The findings will form part of the evidence base for the National Statistician's recommendation in 2023 on the future of population, migration and social statistics in England and Wales.

3 . Strengths and limitations of the admin-based housing stock version 1.0 dataset for 2020

As detailed in our associated methodology article, [Developing admin-based housing stock statistics for England and Wales: 2020](#), there are a few limitations with the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020. Most notably, the undercoverage of the admin-based household estimates (ABHE) means that the ABHS identifies a lower proportion of occupied addresses (9.4 percentage points) than the 2011 Census. The undercoverage of the ABHE has a more notable effect on the proportion of occupied flats (19.6 percentage points lower than the 2011 Census) compared with other accommodation types.

Comparisons with 2011 Census showed that the ABHS reports a larger proportion of terraced addresses and a smaller proportion of semi-detached addresses. This is in line with previous research that identified a preference of 2011 Census respondents to define their property as semi-detached instead of end-terrace. This implies that the ABHS could provide more consistency than self-reported census data and has been discussed in detail in our previous [Admin-based accommodation type statistics for England and Wales, feasibility research: 2011 methodology](#).

Comparisons of the Valuation Office Agency's Council Tax stock of properties with all addresses on the ABHS showed that the number of bedrooms across all property types is very similar across all regions in England and Wales (differences of less than 0.8 percentage points). This suggests that the ABHS data are of good quality despite challenges identifying occupied addresses. We will assess whether using future versions of the ABHEs (or other administrative data sources such as utilities data) to flag occupied addresses improves the ability to accurately identify occupied addresses on the ABHS.

To demonstrate the potential utility of using the ABHS to produce more frequent census-like housing stock statistics we present statistics for all addresses in the ABHS, alongside statistics for occupied ABHS addresses (using the ABHE to flag occupied addresses). We present granular statistics for sub-regional geographies (currently local authorities) and include information that has not previously been readily available (such as number of bathrooms). We seek to align these to user needs as we receive feedback on the potential usefulness of these statistics. The data presented here are not official statistics.

4 . VOA accommodation type (2011 Census definition)

The Valuation Office Agency (VOA) accommodation type (2011 Census definition) variable was derived from VOA data to resemble the seven 2011 Census accommodation types as closely as possible, while adding an additional category for annexes. More information can be found in Section 11. Future research will look to produce an admin-based housing stock (ABHS) dataset for 2021, that includes a VOA accommodation type variable and aligns with the Census 2021 accommodation types.

Figure 1 and Figure 2 show the number of addresses by VOA accommodation type for England and Wales, respectively. We have also provided a dataset for VOA accommodation type by local authority, see Section 9. These data are produced using the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020 and are not official statistics.

Figure 1: Semi-detached and terraced are the most common accommodation types in England

Number of addresses by VOA accommodation type (2011 Census definition) for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020

Figure 1: Semi-detached and terraced are the most common accommodation types in England

Number of addresses by VOA accommodation type (2011 Census definition) for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020
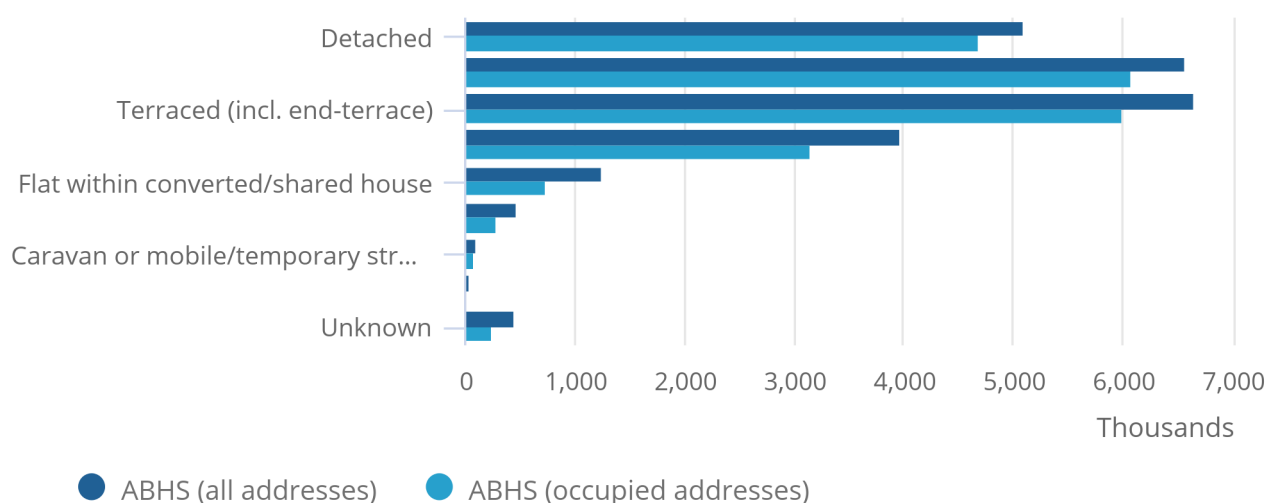
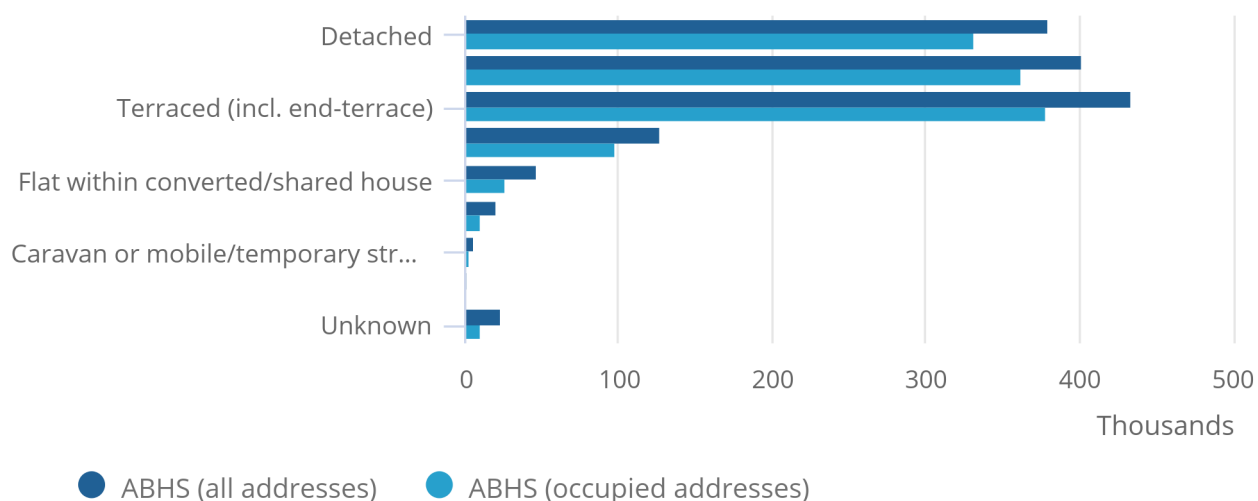**Source: Office for National Statistics and Valuation Office Agency**

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

Figure 2: Terraced is the most common accommodation type in Wales

Number of addresses by VOA accommodation type (2011 Census definition) for all addresses in the ABHS and occupied addresses in the ABHS, Wales, June 2020

Source: Office for National Statistics and Valuation Office Agency

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

5 . VOA number of bedrooms

The Valuation Office Agency (VOA) number of bedrooms variable is defined differently to the census number of bedrooms variable. Most notably, the VOA exclude rooms smaller than four square meters, and include rooms built as bedrooms even if not used as such. For example, the VOA would include a bedroom that might actually be used as a home office. More information can be found in Section 11.

Figure 3 and Figure 4 show the number of addresses by VOA number of bedrooms for England and Wales, respectively. We have also provided datasets for VOA number of bedrooms by local authority and VOA number of bedrooms by accommodation type and local authority, see Section 9. These data are produced using the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020 and are not official statistics.

Figure 3: Addresses most commonly have three bedrooms in England

Number of addresses by number of bedrooms for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020

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Number of addresses by number of bedrooms for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020
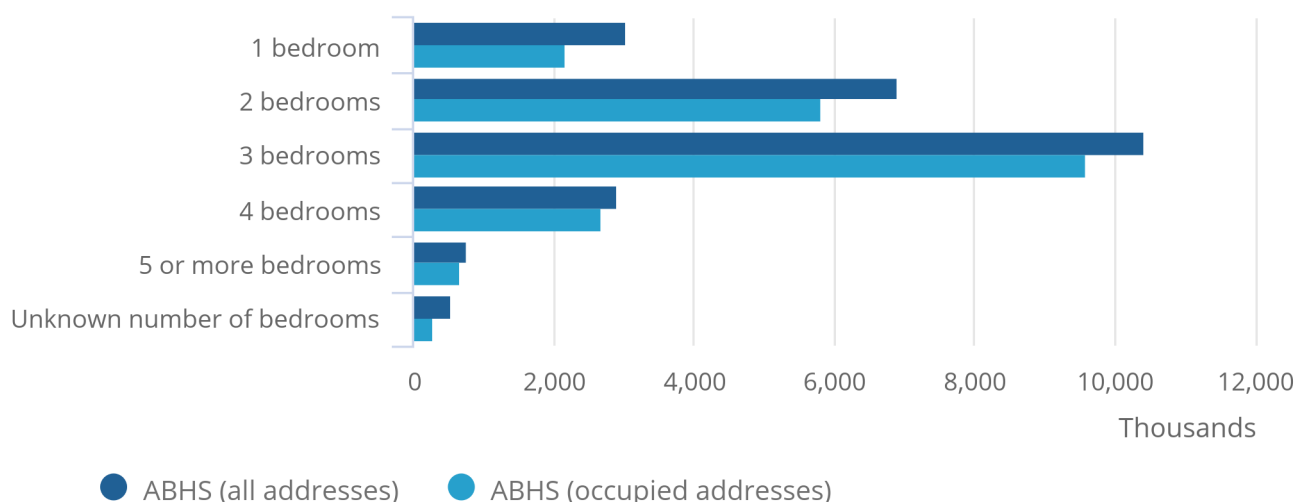
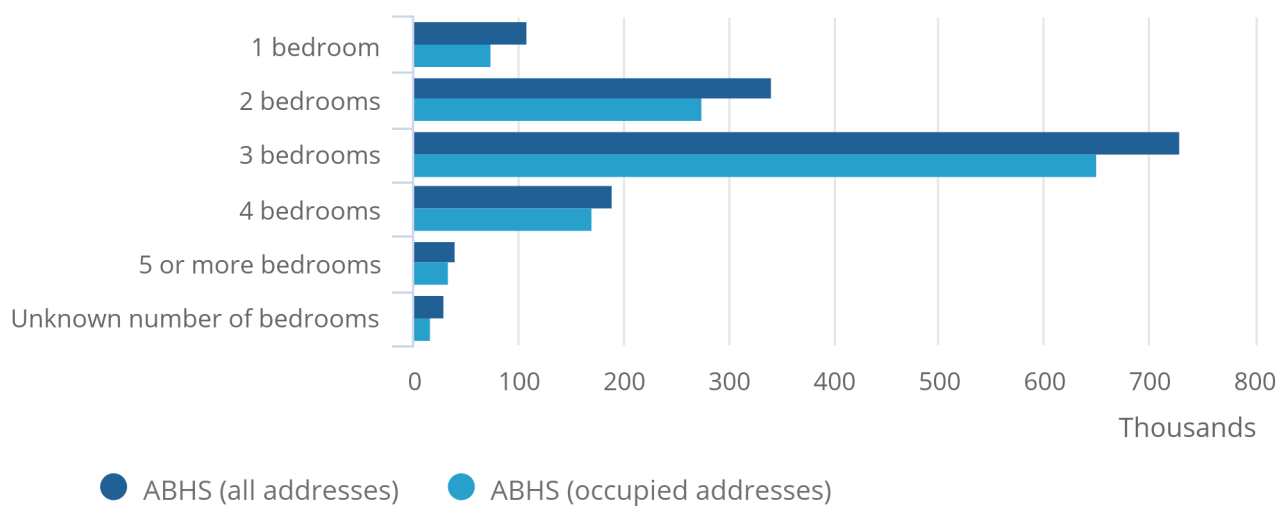**Source: Office for National Statistics and Valuation Office Agency**

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

Figure 4: Addresses most commonly have three bedrooms in Wales

Number of addresses by number of bedrooms for all addresses in the ABHS and occupied addresses in the ABHS, Wales, June 2020

Source: Office for National Statistics and Valuation Office Agency

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

6 . VOA number of rooms

The Valuation Office Agency (VOA) number of rooms variable is defined differently to the 2011 Census number of rooms. Most notably the VOA exclude kitchens and utility rooms, meaning that for the majority of addresses, the number of rooms according to the VOA definition would be one less than the 2011 Census definition. For Census 2021, information on number of rooms will come from linked VOA data. More information can be found in Section 11.

Figure 5 and Figure 6 show the number of addresses by VOA number of rooms for England and Wales, respectively. We have also provided datasets for VOA number of rooms by local authority and VOA number of rooms by accommodation type and local authority, see Section 9. These data are produced using the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020 and are not official statistics.

Figure 5: Addresses most commonly have four rooms in England

Number of addresses by number of rooms for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020

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Number of addresses by number of rooms for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020
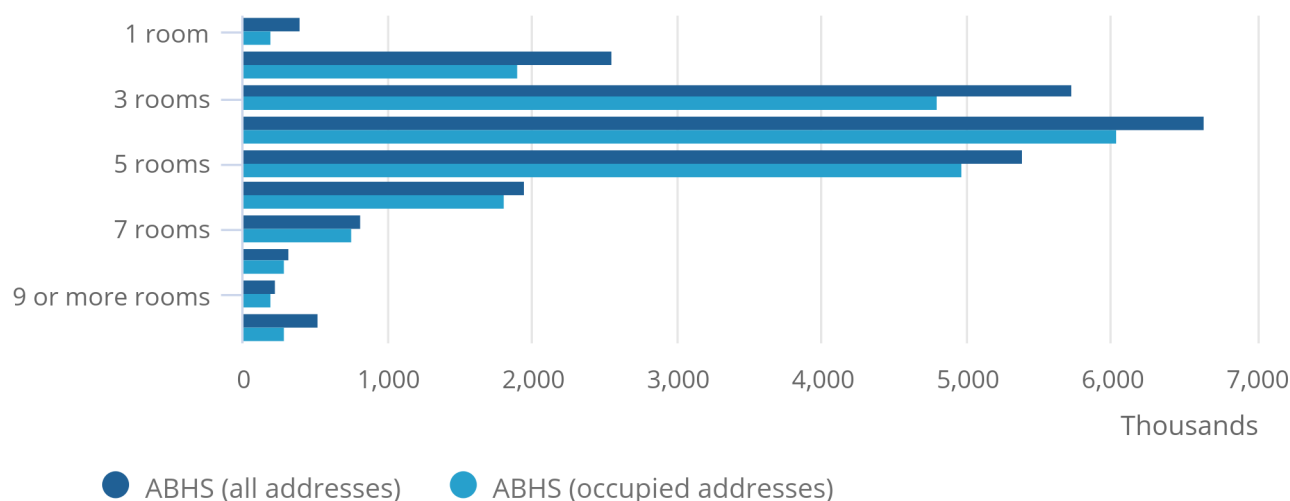
Source: Office for National Statistics and Valuation Office Agency

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

Figure 6: Addresses most commonly have four or five rooms in Wales

Number of addresses by number of rooms for all addresses in the ABHS and occupied addresses in the ABHS, Wales, June 2020
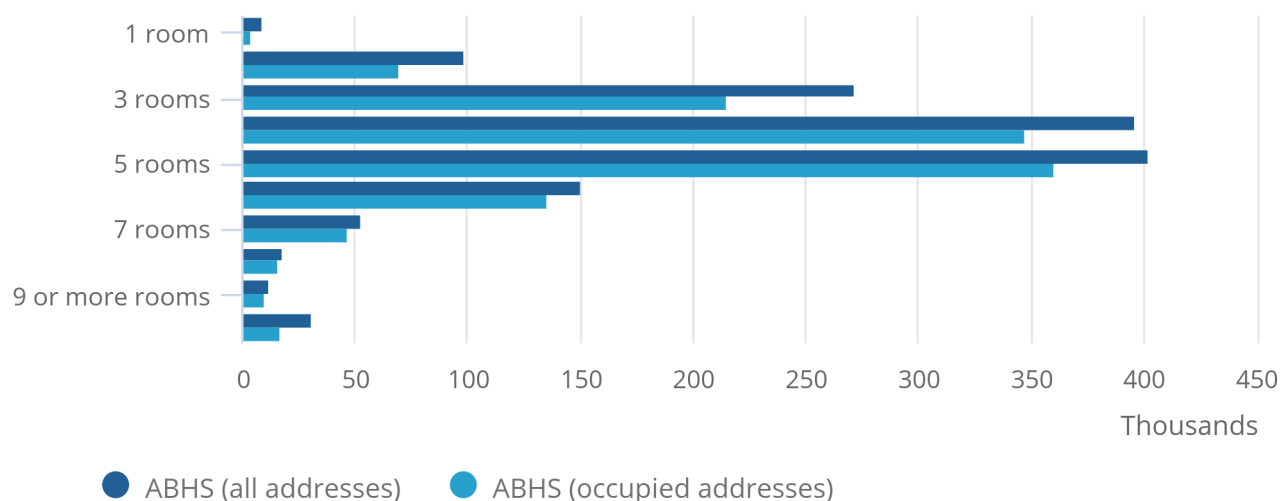
Figure 6: Addresses most commonly have four or five rooms in Wales

Number of addresses by number of rooms for all addresses in the ABHS and occupied addresses in the ABHS, Wales, June 2020

Source: Office for National Statistics and Valuation Office Agency

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

7 . VOA property build period

The Valuation Office Agency (VOA) property build period variable was derived from build period as recorded by the VOA. The groupings have been chosen to, where possible, allow comparisons with other data sources, such as the English Housing Survey. More information can be found in Section 11.

Figure 7 and Figure 8 show the number of addresses by VOA property build period for England and Wales, respectively. We have also provided datasets for VOA property build period by local authority, and VOA property build period by accommodation type and local authority, see Section 9. These data are produced using the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020 and are not official statistics.

Figure 7: Five million addresses were built before 1919 but we only identified four million of these as occupied in England

Number of addresses by property build period for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020

Figure 7: Five million addresses were built before 1919 but we only identified four million of these as occupied in England

Number of addresses by property build period for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020
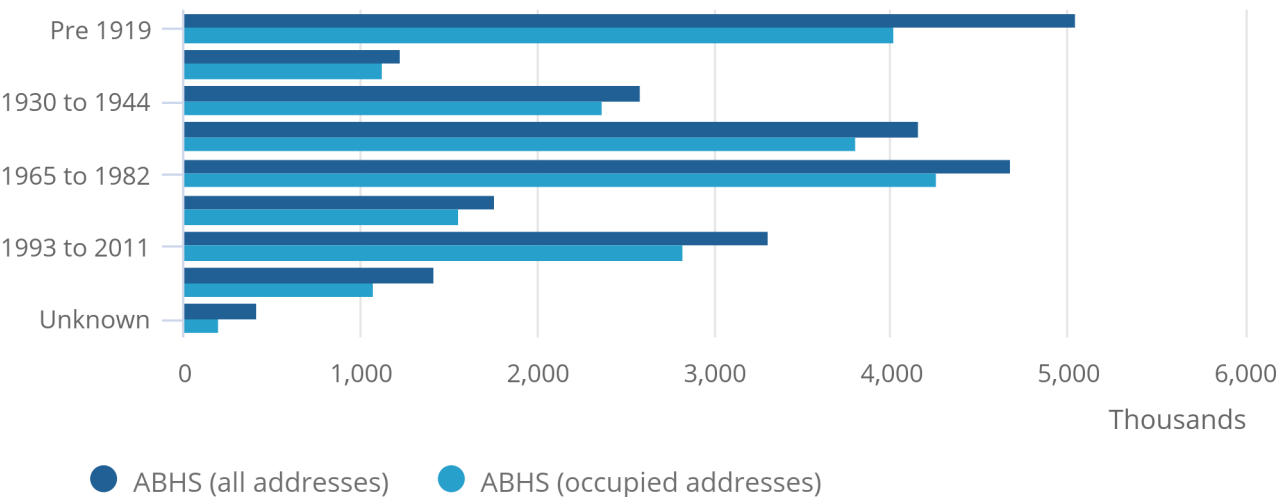
Source: Office for National Statistics and Valuation Office Agency

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

Figure 8: Over 0.4 million addresses were built before 1919 but we only identified 0.3 million of these as occupied in Wales

Number of addresses by property build period for all addresses in the ABHS and occupied addresses in the ABHS, Wales, June 2020

Figure 8: Over 0.4 million addresses were built before 1919 but we only identified 0.3 million of these as occupied in Wales

Number of addresses by property build period for all addresses in the ABHS and occupied addresses in the ABHS, Wales, June 2020

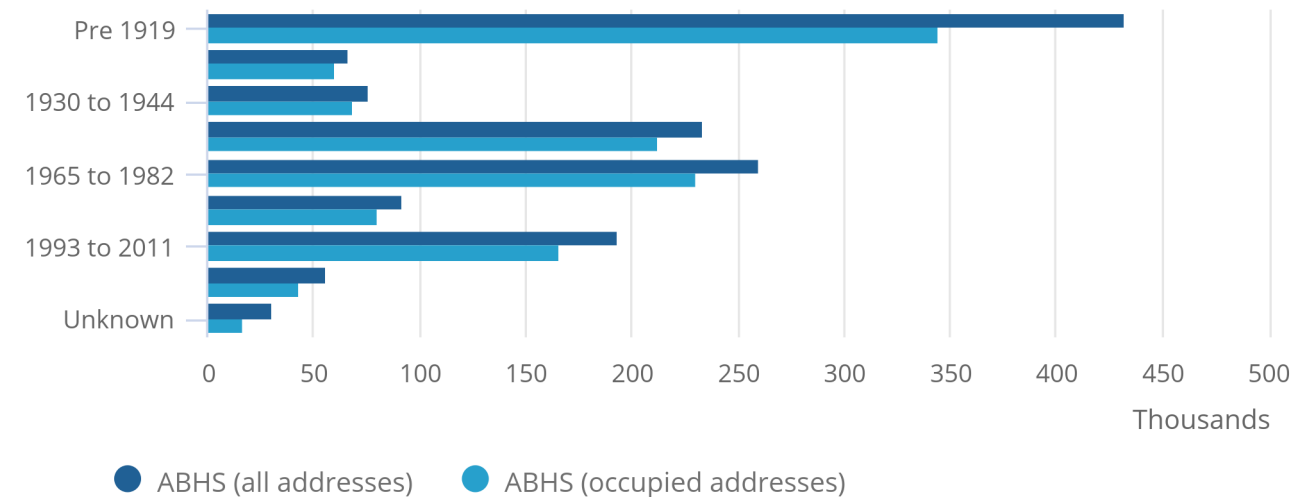**Source: Office for National Statistics and Valuation Office Agency**

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

8 . VOA number of bathrooms

The Valuation Office Agency (VOA) define bathrooms as all bathroom facilities (separate and en-suite) with at least three fixments and exclude all separate water closets (WCs). Where there are no bathroom facilities within a dwelling, a "0" is captured. The census does not provide information on the number of bathrooms. All definitions can be found in Section 11.

Figure 9 and Figure 10 show the number of addresses by VOA number of bathrooms for England and Wales, respectively. We have also provided datasets for VOA number of bathrooms by local authority, and VOA number of bathrooms by accommodation type and local authority, see Section 9. These data are produced using the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020 and are not official statistics.

Figure 9: Addresses most commonly have one bathroom in England

Number of addresses by number of bathrooms for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020

Figure 9: Addresses most commonly have one bathroom in England

Number of addresses by number of bathrooms for all addresses in the ABHS and occupied addresses in the ABHS, England, June 2020
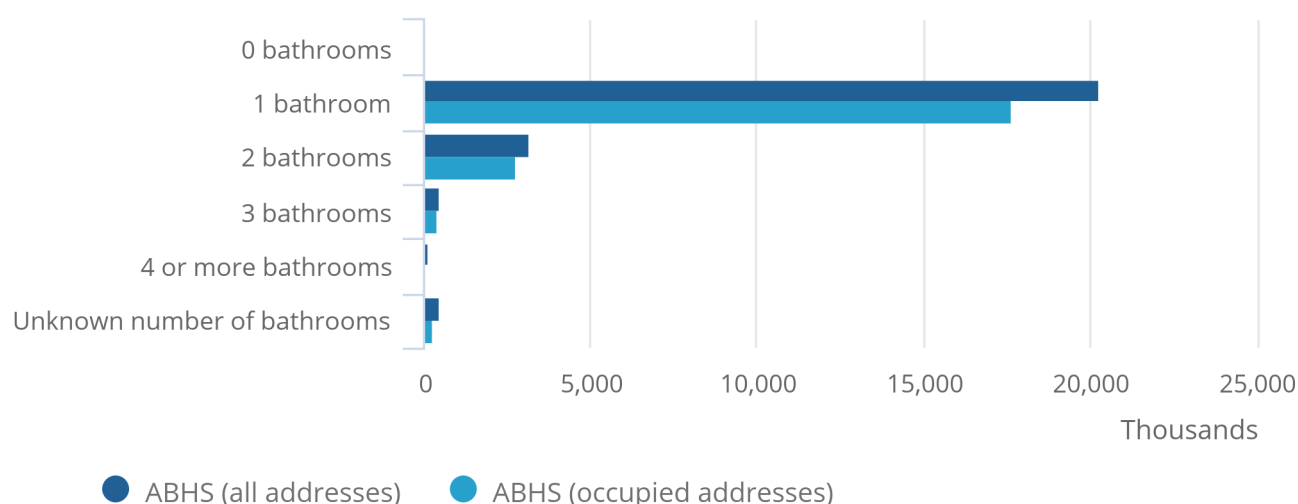
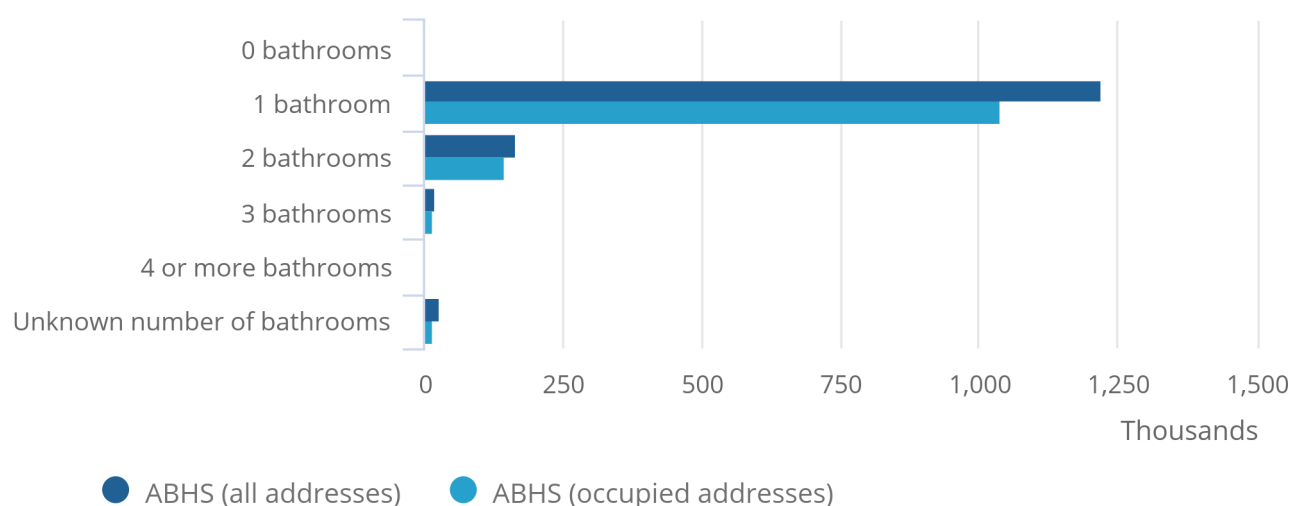**Source: Office for National Statistics and Valuation Office Agency**

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

Figure 10: Addresses most commonly have one bathroom in Wales

Number of addresses by number of bathrooms for all addresses in the ABHS and occupied addresses in the ABHS, Wales, June 2020

Figure 10: Addresses most commonly have one bathroom in Wales

Number of addresses by number of bathrooms for all addresses in the ABHS and occupied addresses in the ABHS, Wales, June 2020

Source: Office for National Statistics and Valuation Office Agency

Notes:

1. ABHS refers to the admin-based housing stock version 1.0 dataset for 2020.

9 . Admin-based housing stock version 1.0 data for 2020 (small geographies)

Admin-based housing stock statistics, England and Wales
Dataset | Released 5 December 2022
Admin-based housing characteristics data for all, and occupied, addresses in England and Wales, by local authority. These data are produced using the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020 and are not official statistics.

10 . Future developments

The presented summary statistics demonstrate the feasibility of using the admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020 to produce a profile of the housing stock in England and Wales. The ABHS is being developed to explore the feasibility of using administrative data to provide more regular census-like housing statistics for occupied residential addresses (down to small geographies) across England and Wales. More information about the method used to produce the ABHS can be found in our methodology article, Developing admin-based housing stock statistics for England and Wales: 2020.

These data are not official statistics. Further work is required to assess and improve the quality of these statistics on housing characteristics for occupied addresses. Future work will include:

- producing the ABHS for 2021 and conducting comparisons to Census 2021 at address-level, as well as to summary statistics once these are released to users (see Census 2021 Housing analysis plans)

- improving the underlying ABHS dataset, especially the way we identify occupied addresses (see our methodology article, Developing admin-based housing stock statistics for England and Wales: 2020)

- exploring other variables available on the Valuation Office Agency (VOA) data where they meet user needs

- exploring the feasibility of linking the ABHS dataset with an admin-based ethnicity dataset to produce housing by ethnicity statistics, which we plan to publish at the beginning of 2023

Feedback

We welcome feedback on the method used to produce admin-based housing stock statistics. We are very interested in understanding what uses housing stock statistics have and how likely they are to be of interest in the future to inform policies, target schemes and monitor changes over time. This information will help us to ensure we meet user needs where possible. Please email your feedback to admin.based.characteristics@ons.gov.uk. Please include "Admin-based housing stock" in the subject line of your response.

11 . Glossary

Occupied addresses

For this research, addresses in the admin-based housing stock version 1.0 (ABHS V1.0) 2020 dataset are identified as occupied if they successfully linked to at least one record in the admin-based household estimates version 3.0 (ABHE V3.0) dataset. For more information about the ABHE V3.0 and how it is used to identify occupied addresses in the ABHS, see Section 12.

VOA accommodation type (2011 Census definition)

The Valuation Office Agency (VOA) accommodation type (2011 Census definition) variable is derived from VOA property type and VOA dwelling code. For this research, the VOA accommodation types are derived to resemble the seven 2011 Census accommodation types as closely as possible, while adding an additional eighth category for annexes. "Annexe" is not a category in the 2011 Census accommodation type variable, but it is a new category we propose for the VOA property type of "annexe". The VOA describe an annexe as a building, or part of a building, which has been constructed or adapted for use as separate living accommodation.

We use shortened wordings for the accommodation type categories in this article. The VOA property types that could not be fully mapped to a 2011 Census accommodation type were marked as "unknown". This included "houses in a cluster", "bungalows in a cluster", "houses of unidentified type", "bungalows of unidentified type" or "flats of unidentified type". Full information on the category names and mapping method can be found in our Admin-based accommodation type statistics for England and Wales, feasibility research: 2011 methodology.

VOA number of bedrooms

The VOA number of bedrooms variable is defined differently to census number of bedrooms question. Most notably, the VOA exclude rooms smaller than four square meters and include rooms built as bedrooms even if not used as such. For example, the VOA would include a bedroom that has been permanently converted to a home office. The VOA also state that studio or bedsit accommodation with a combined living room and bedroom should be recorded as having one room and one bedroom. More information about the definitional differences and the impact these may have on using VOA number of bedrooms in place of census number of bedrooms can be found in our Admin-based levels of overcrowding (using the bedroom standard and Valuation Office Agency number of bedrooms), feasibility research: England and Wales: January 2021 article.

VOA number of rooms

The VOA number of rooms variable is defined differently to the 2011 Census number of rooms. Most notably, the VOA only include living rooms, separate dining rooms, studios, bedrooms and box rooms, and exclude kitchens, utility rooms and conservatories. The VOA also state that the number of rooms should always be greater than the number of bedrooms, except for when studio or bedsit accommodation comprises of a combined living room and bedroom, where they should be recorded as having one room and one bedroom.

A full summary of the differences between VOA and 2011 Census, along with information about what rooms are included and excluded, can be found in our Estimating the number of rooms and bedrooms in the 2021 Census: An alternative approach using Valuation Office Agency data article. The impact of these differences is that, for the majority of addresses, the number of rooms according to the VOA definition will be one less than it would be according to the 2011 Census.

A recent application of this research is the removal of the number of rooms question from Census 2021, with this information coming from VOA data instead. Please see our Housing characteristics research for more detail.

VOA number of bathrooms

The VOA define bathrooms as all bathroom facilities (separate and en-suite) with at least three fixments and exclude all separate water closets (WCs). Where there are no bathroom facilities within a dwelling, a "0" is captured. The census does not provide information on the number of bathrooms.

VOA property build period

The VOA property build period variable was derived from build period as recorded by the VOA. The groupings here have been chosen to allow comparisons to other data sources, such as the English Housing Survey (EHS), however, they are limited by the build age codes used in the underlying VOA data. For example, the EHS include dwelling age groupings of "1981 to 1990" and "1991 to 2002", but the underlying VOA data has build age categories of "1983 to 1992" and "1993 to 1999", hence the slight misalignment of the categories derived for the VOA property build period variable presented in this statistical summary. The VOA also note that there are no records of properties having been built between 1939 and 1945.

Unknown property characteristics

For the VOA accommodation type (2011 Census definition) variable, the "unknown" category includes addresses where the residential Address Frame did not link to a VOA address, when the property attributes data was missing on the linked VOA data, or when the VOA data could not be mapped to a 2011 Census accommodation type group.

For all other variables, property characteristics are marked as "unknown" when the residential Address Frame did not link to a VOA address, or when the property attributes information was missing on the linked VOA data.

12 . Data sources and quality

Admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020

The admin-based housing stock version 1.0 (ABHS V1.0) dataset for 2020 brings together data from several administrative sources with the aim of developing a new method for producing more regular census-like statistics for occupied residential addresses (down to small geographies) across England and Wales. The ABHS was produced by linking a residential Address Frame to Valuation Office Agency (VOA) data and the admin-based household estimates version 2.0 and version 3.0 (ABHE V2.0 and V3.0). A more detailed description of how we developed the ABHS and assessed its quality can be found in our associated methodology article, Developing admin-based housing stock statistics for England and Wales: 2020.

We used an Address Frame from June 2020 to identify residential addresses in England and Wales. The Address Frame was produced with data from 2020, using the methodology used to produce the Address Frame for Census 2021. We removed communal establishments (CEs) from the Address Frame to align more closely with the 2011 Census definition of a household.

VOA property characteristics data from June 2020 were then linked to the residential Address Frame to identify the main housing characteristics. The information that the VOA collect and hold about domestic and residential properties supports its statutory function of banding properties for Council Tax. For this research, we have used VOA property attributes data on number of rooms, number of bedrooms, number of bathrooms, property build period and property type (see the VOA's Property Details Guide for a full list).

The ABHE V2.0 and V3.0 datasets for 2020 were then linked to the residential Address Frame, and addresses were flagged as occupied if they successfully linked to at least one record in the respective ABHE dataset. The ABHEs are derived from the Statistical Population Datasets (SPDs) that provide estimates of the usually resident population of England and Wales. The ABHEs are created by taking all usual residents from the SPDs that can be assigned a unique property reference number (UPRN) and grouping them into addresses to estimate the size and composition of addresses. For the summary statistics and datasets presented here, we only use the ABHE V3.0 to flag occupied addresses. The ABHE V3.0 was derived from the SPD V3.0.

The SPD V3.0 identifies usual residents using activity-based rules, meaning that an individual is only included in the population dataset if there is evidence of them interacting with an administrative system within the 12 months prior to the reference date, or if they appear in the same address and have a relationship with an active person. The SPD V3.0 was designed with the explicit objective of avoiding the population overcount apparent in SPD V2.0. More information about the SPD V3.0 can be found in our Developing our approach for producing admin-based population Estimates, England and Wales: 2011 and 2016 article.

The residential Address Frame was then linked to the National Statistics UPRN Lookup (NSUL) to obtain additional geography variables. A small number of ABHS records that could not be linked to the NSUL were removed. The ABHS 2020 V1.0 included 26.0 million addresses, of which 22.5 million were flagged as occupied by the ABHE V3.0.

13 . Related links

[Developing admin-based housing stock statistics for England and Wales: 2020](#)
Article | Released 5 December 2022
An overview of methods, data sources and data quality for the feasibility research on producing census-like housing stock statistics using administrative data.

[Admin-based accommodation type statistics for England and Wales, feasibility research: 2011](#)
Methodology | Last revised 10 March 2022
Further research demonstrating the improved potential of Valuation Office Agency (VOA) data to provide detailed information on accommodation type, and examining how VOA data compare with the 2011 Census data, and a request for feedback on the usefulness of these statistics.

[Housing characteristics](#)
Webpage | Last updated 26 October 2022
These outputs are part of our ongoing research into the possibility of combining administrative data and surveys to produce statistics for census-type information about housing characteristics as part of an Administrative Data Census.

[Valuation Office Agency property attribute data: quality assurance of administrative data used in Census 2021](#)
Methodology | Last revised 31 July 2020
Summary of the quality assurance undertaken on administrative data for Valuation Office Agency property attribute data used in Census 2021.

14 . Cite this article

Office for National Statistics (ONS), released 5 December 2022, ONS website, article, [Admin-based housing stock profile for England and Wales: 2020](#)