



Response to the Office for National Statistics consultation on estimating number of rooms and bedrooms using Valuation Office Agency data

13 December 2017

Contents

1. Executive summary	3
2. Background	4
3. Summary of responses	4
4. Research into data quality concerns	7
4.1 Overcrowding estimates (occupancy rating for bedrooms)	7
4.2 Timeliness of VOA data	11
5. Current assessment.....	11
Annex 1: List of responding organisations	12

1. Executive summary

In [our response](#) to the 2021 Census topic consultation we outlined our intention to investigate the use of Valuation Agency Office (VOA) data to provide information on number of rooms and bedrooms. In our response we also stated that we did not believe it was appropriate to continue to ask two questions designed to meet a single information need if there is not a clear requirement to do this. This is in the context of minimising respondent burden.

We then published our assessment of [estimating number of rooms and bedrooms using Valuation Office Agency \(VOA\) admin data](#) as a potential alternative to estimating the number of rooms and bedrooms on the 2021 Census. We held a public consultation from 28 June to 25 September 2017, inviting users to respond to this publication. This report summarises the responses we received.

The consultation received 34 complete responses from central government, local authorities, academics and agencies (see section 6). We would like to thank respondents for taking the time to respond to our consultation. There were two key conclusions from the responses we received.

Firstly, in the context of asking one question, number of bedrooms was more appropriate than number of rooms. This is because:

- more respondents used number of bedrooms than number of rooms
- the requirement for number of rooms is for under- and over-occupancy, this calculation can be done from number of bedrooms and no evidence has been provided of the need for two questions in the census
- we know that the data quality for a number of bedrooms question is greater than number of rooms¹

Given these points and our belief that it is only appropriate to ask one question, we intend to recommend not asking a question on the number of rooms in the 2021 Census.

Secondly, respondents highlighted some quality concerns they had with the VOA data. These included:

- the differences between VOA and 2011 Census for occupancy rating (bedrooms)
- how frequently VOA records are updated

They were also unsure how changing to an address-based measure would impact the data use compared with the census household-based measure.

We have conducted further research to understand these issues in more detail. This research has concluded that at present these quality concerns would impact data use. Therefore we intend to recommend asking number of bedrooms on the 2021 Census.

We will continue research into understanding the Valuation Office Agency (VOA) data and how it can be used to enhance the 2021 Census outputs and in an [Administrative Data Census](#). This will include research to understand the quality of the number of rooms data and considering how the VOA size of property variable could be used.

¹ The 2011 Census Quality Survey (CQS) highlighted that the number of rooms question had a low agreement rate at 66.5%. The CQS highlighted issues attributable to open-planned living, respondents misunderstanding the question and not including spaces such as conservatories or utility rooms. In contrast, the number of bedrooms question has a high agreement rate at 91.4%.

2. Background

The question on the number of bedrooms was asked for the first time in 2011 to complement the question on number of rooms which had been shown to be complex, requiring detailed guidance. Bedrooms were a new measure of overcrowding introduced by the government which had implications on the national planning guidance.

The 2011 Census Quality Survey (CQS) showed that the number of rooms question was poorly answered in comparison to the question about the number of bedrooms. The CQS found that the number of rooms question had a low agreement rate at 66.5%. The CQS highlighted issues attributable to open-planned living, respondents misunderstanding the question and not including spaces such as conservatories or utility rooms. In contrast, the number of bedrooms question has a high agreement rate at 91.4%.

In March 2015, Parliament approved an [Information Sharing Order, under the Statistics and Registration Services Act 2007](#). This order allows the Valuation Office Agency (VOA) to share information about property attributes, including the number of rooms and number of bedrooms, with the UK Statistics Authority. The information VOA collects and holds about domestic properties is in support of its statutory functions for valuation and maintenance of Council Tax lists. It's the statutory requirement of VOA to maintain accurate valuation lists for Council Tax and every effort is made to ensure the accuracy of the data.

Access to this data allowed us to consider replacing the number of rooms and/or bedrooms question on the census with administrative data.

3. Summary of responses

The consultation ran for a period of 12 weeks from the 28 June 2017 to 25 September 2017 and received 36 responses. Two of these contained insufficient information to include and therefore have been discounted from the analysis. This report covers the 34 complete responses.

The consultation received responses from local authorities, government departments, commercial organisations, health organisations and individuals (for full details of those who responded see Annex 1).

The consultation invited users to provide evidence on how this change would affect their work. Tables 1 and 2 highlight the user acceptability towards using Valuation Office Agency (VOA) data to estimate number of rooms and bedrooms as an alternative to data from the census.

Table 1 shows how respondents felt using VOA data for number of rooms would impact their work. Of those who responded, nine indicated it would have a positive effect on their work and 12 responses did not indicate an impact either way.

Table 1: Overall user acceptability for using VOA data to estimate number of rooms

Impact	Strong negative	Negative	No impact	Positive	Strong Positive
Total no. of respondents	1	5	12	9	0

Source: Office for National Statistics

Notes:

1. VOA - Valuation Office Agency
2. Total number of responses may not add up to 34 as some respondents stated they do not use number of rooms data.

Table 2 shows how respondents felt using VOA data for number of bedrooms would impact their work. Of those who responded, 10 indicated using VOA data would have a positive impact on their work and 15 respondents did not indicate an impact either way.

Table 2: Overall user acceptability for using VOA data to estimate number of bedrooms

Impact	Strong negative	Negative	No impact	Positive	Strong Positive
Total no. of respondents	2	7	15	10	0

Source: Office for National Statistics

Notes:

1. VOA - Valuation Office Agency

Respondents who use number of rooms and bedrooms data highlighted that the information is primarily used to assess changes in overcrowding and under-occupancy. Respondents also highlighted that rooms and bedrooms data is used to tackle deprivation, develop appropriate housing provisions and allocate resources. The consultation found that more respondents use number of bedrooms information compared to number of rooms. This is likely due to the data quality issues associated with number of rooms, in relation to open-plan living and respondents not including spaces such as conservatories or utility rooms.

In the consultation, we asked what the impact would be on changing from using information at the household level (as in the census) to information at the address level (as in the VOA data). The majority of respondents were satisfied address-level data would still meet their needs. However, there were some respondents who were unsure what the impact would be on cross-tabular analysis using VOA address-level data with census household variables.

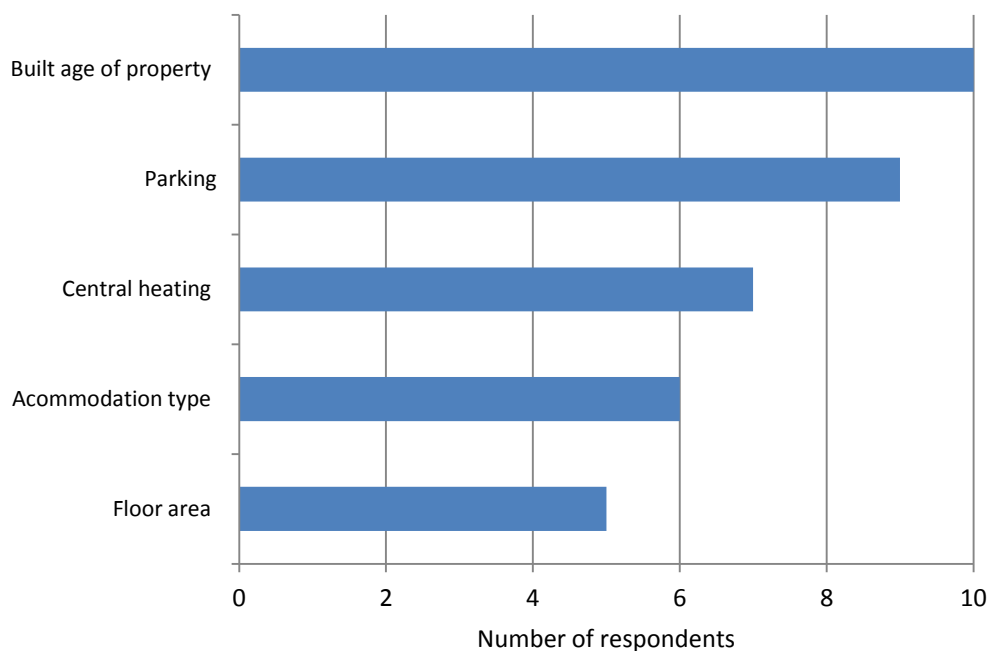
In the consultation we asked about the frequency of information respondents would be interested in. A total of 31 respondents indicated that they or their organisation would be interested in more frequent estimates of housing characteristics based on the VOA data. The majority of respondents said either annual or two-yearly estimates would be most beneficial.

We also asked what other household variables respondents would be interested in and how they would use the results (Figure 1). An exhaustive list of property attributes from VOA can be found in the [VOA Manual](#).

Respondents were most interested in:

- built age of property
- presence or absence of parking
- central heating
- accommodation type
- floor area

Figure 1: Top five additional VOA variables users were interested in



Source: Office for National Statistics

Notes:

1. VOA – Valuation Office Agency.

Respondents highlighted that they would use information from additional variables for a variety of purposes, including to support housing policy, planning and strategic objectives. Respondents were most interested in estimates on built age of property and stated information would be used to estimate stock condition and produce population yield calculations² for newer properties.

Information on parking would help measure street overcrowding and support the implementation of local parking permit schemes, parking restrictions and traffic redesign. More regular updates on the presence or absence of central heating in addresses would also help with fuel poverty targets. Information on accommodation type would help users identify household composition and household projections. Respondents also expressed that information on floor area would be useful to identify property size and highlight potential areas of overcrowding and under-occupancy.

² Population yield calculations are estimates of the number of people who can be expected to live in a new housing development once it is completed.

4. Research into data quality concerns

In the consultation respondents highlighted some quality concerns they had with the Valuation Office Agency (VOA) data. These included:

- the differences between VOA and 2011 Census for occupancy rating (bedrooms)
- how frequently VOA records are updated

We have conducted research into these two areas to consider how the VOA data could be used to replace the number of bedrooms question.

4.1 Overcrowding estimates (occupancy rating for bedrooms)

Information on the number of rooms and bedrooms is used alongside other census data by a range of sectors to understand household overcrowding and under-occupancy. This informs decision-making through housing strategies and housing needs assessments.

In our June publication, we identified that 6.1% (approximately 1,347,000) of addresses in England and Wales would be classified as overcrowded using the VOA data on bedrooms. This is compared with 4.5% (approximately 1,007,000) using the 2011 Census data (see Table 3). We used the number of bedrooms information rather than number of rooms due to greater consistency of definitions between the two sources compared to number of rooms.

Some consultation respondents were concerned that nationally, this would result in 34% more addresses (339,000) falling in the overcrowded category when using VOA data ³.

Table 3: Number and proportion of addresses by occupancy rating for bedrooms, 2011 Census and VOA, England and Wales

Occupancy rating (bedrooms)	2011 Census		VOA	
	Number of addresses	%	Number of addresses	%
Overcrowded (1 or more bedrooms too few)	1,007,366	4.5	1,346,659	6.1
Standard (zero)	5,689,866	25.6	5,566,787	25.4
Under-occupied (1 spare room)	7,716,825	34.8	7,477,178	34.1
Under-occupied (2 or more spare rooms)	7,791,805	35.1	7,549,879	34.4
Total	22,205,862	100	21,940,503	100

Source: Office for National Statistics

Notes:

1. VOA – Valuation Office Agency.

³ Further information on how occupancy ratings are calculated can be found in section 7 of [this report](#).

There are definitional differences between the VOA and 2011 Census for bedrooms. In the 2011 Census, a bedroom is defined as any room intended to be used as a bedroom when the property was built, or any room that has been permanently converted for use as a bedroom. It also includes all rooms intended for use as bedrooms even if they aren't being used as such at the time of the census.

In the VOA data, bedrooms include rooms that are built as bedrooms, even if they aren't being used as such. It excludes rooms incapable of comfortably holding a single bed (approximately anything less than 2m x 2m).

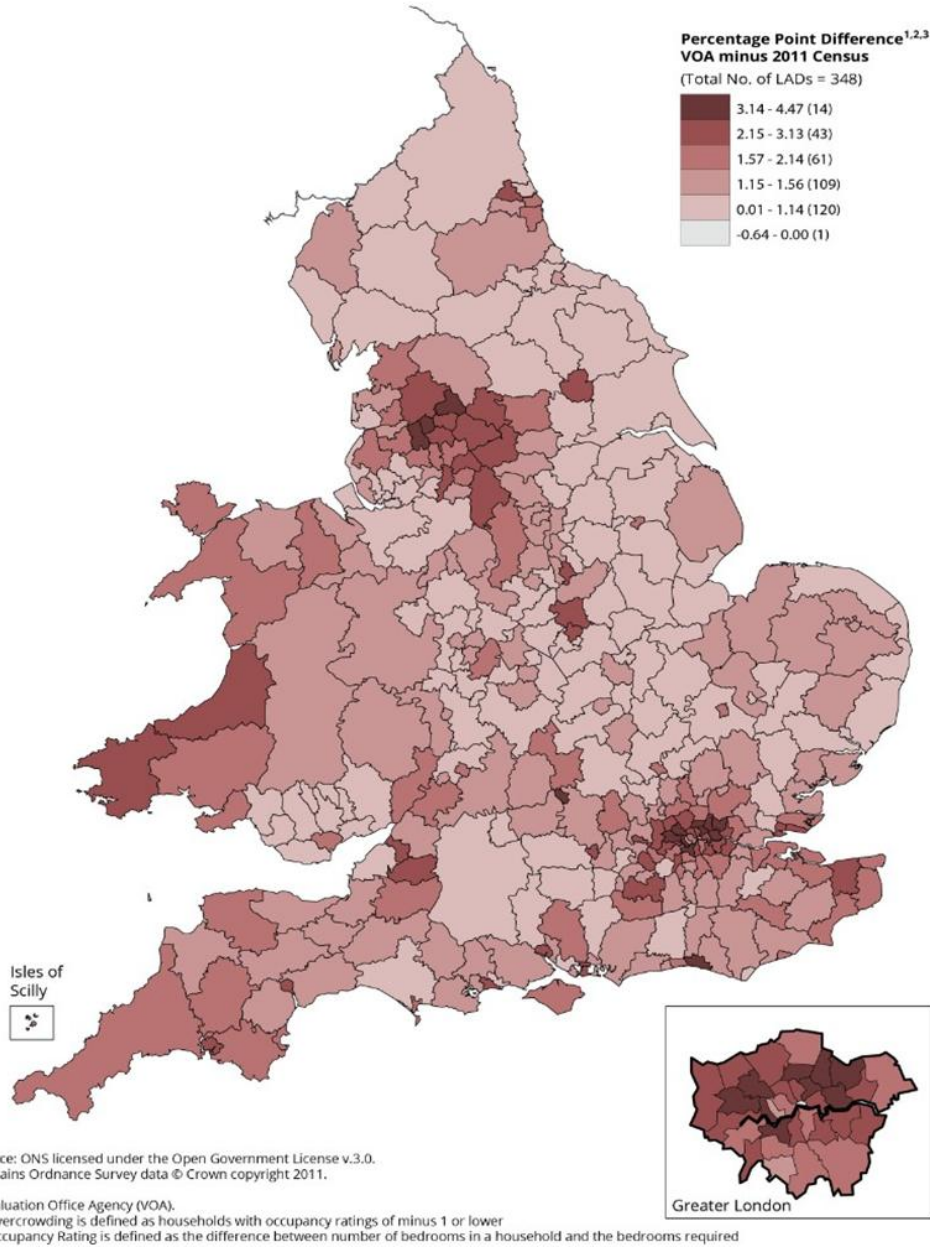
By these definitions, the census is likely to estimate more bedrooms than the VOA, particularly for properties that are used for student housing, as more rooms are converted into bedrooms. This is included as part of the census definition, but is not explicit in the VOA definition of a bedroom.

This can be seen in Figure 2, which shows the percentage point difference in the proportion of overcrowded addresses between VOA and 2011 Census for bedrooms at local authority level in England and Wales. It is not a representation of high levels of overcrowding, rather it reflects where there are more addresses in the overcrowded category for VOA data compared with 2011 Census data.

Figure 2 shows that local authorities with some of the higher percentage point differences appear to be those with large inner cities and those that contain universities (such as Birmingham, Manchester, Bristol, Oxford, Leeds and Ceredigion - Aberystwyth University). In these local authorities, it is possible that there are more properties that have had rooms converted into bedrooms, particularly in properties that are used for students.

Figure 2: Percentage point difference in the proportion of overcrowded addresses between VOA and 2011 Census for bedrooms at local authority level in England and Wales.

Percentage Point Difference between VOA and Census in overcrowding for England and Wales, by Local Authority Districts (LADs), 2011.



Source: Office for National Statistics

Notes:

1. VOA - Valuation Office Agency
2. LADs - Local Authority Districts

Table 4 shows the top and bottom 10 local authorities by percentage point difference for addresses that are overcrowded.

The majority of local authorities with the biggest percentage point difference between the 2011 Census and VOA data are in London and the North West. The biggest difference is in Brent with 4.5% more addresses in the overcrowded category for VOA compared with 2011 Census. Five of these local authorities (Newham, Brent, Hackney, Waltham Forest and Hammersmith and Fulham) were also in the top ten for overcrowding.

Table 4: Percentage of overcrowded (one or more bedrooms too few) addresses by local authority (2011 Census and VOA data) by percentage point difference (top and bottom 10)

Local Authority	% addresses overcrowded (one or more bedrooms too few)		% point difference between 2011 Census and VOA
	2011 Census	VOA	
Top 10			
Brent	17.7	22.1	4.5
Oxford	6.1	10.2	4.2
Pendle	5.1	9.2	4.1
Waltham Forest	14.6	18.6	4.0
Wandsworth	8.9	12.7	3.9
Brighton and Hove	6.5	10.3	3.8
Hammersmith and Fulham	12.2	15.9	3.8
Hackney	15.5	19.1	3.5
Newham	24.7	28.2	3.5
Hyndburn	4.6	8.1	3.5
Bottom 10			
City of London	7.5	6.9	-0.6
Corby	3.1	3.6	0.4
Doncaster	3.2	3.7	0.5
North East Lincolnshire	2.5	3.0	0.6
Rutland	1.2	1.8	0.6
Stevenage	4.0	4.6	0.6
North Lincolnshire	2.8	3.4	0.6
Stockton-on-Tees	3.0	3.6	0.6
Ipswich	3.5	4.2	0.6
Caerphilly	3.0	3.7	0.7

Source: Office for National Statistics

Notes:

1. VOA – Valuation Office Agency.

This research shows that the VOA data are more comparable to census occupancy ratings in some parts of the country than others. The size of variation in some areas, and the likely impact on understanding overcrowding, provides evidence for the need to include the number of bedrooms question on the census.

4.2 Timeliness of VOA data

Respondents to the consultation commented on the timeliness of the VOA data. To research this, we analysed the VOA data to assess how recently any alterations to properties had been recorded. Some respondents expressed concerns that the VOA data might be less accurate depending on whether properties were rented, owner occupied etc. Therefore, we also looked at the changes recorded according to the tenure of the household at that address in the 2011 Census.

Our research found that the majority of records were updated in 2005. This reflects a bulk-capture exercise in England during 2003 and 2004, when property attributes for each address were extracted from hardcopy records, such as dwelling surveys and précis sheets⁴, and details were digitised. A similar data capture exercise occurred in Wales in 2005. After the bulk-capture exercise, records have been updated using other sources of data, including inspections and third-party data. More information on this can be found in the VOA [Property Details Guide](#).

Our research implied that the characteristics of rented properties are more frequently updated than addresses that are owned outright or owned with a mortgage / loan. This is likely to be because the turnover of people in rented properties is more frequent. We also found that a quarter of addresses that were part-owned and part-rented (shared ownership) were updated in 2009. This is likely to be because the government introduced the HomeBuy Direct⁵ scheme in 2009.

There is still some uncertainty about the timeliness of VOA data for use in place of census data. In many instances, there may be no changes and therefore we wouldn't expect to see any updates in the data. For new build properties, VOA data will be more up to date in years between censuses. It is unclear to us what the time lag may be when changes are made to properties.

5. Current assessment

In response to the evidence provided by users and our additional research, we intend to recommend keeping the question on the number of bedrooms in the 2021 Census.

We intend to recommend removing the number of rooms question from the 2021 Census. This is because we believe it is not appropriate to continue to ask two questions to meet a single information need and the evidence favours asking number of bedrooms. The evidence for this is that:

- more respondents used number of bedrooms than number of rooms
- the requirement for number of rooms is for under- and over-occupancy, this calculation can be done from number of bedrooms and no evidence has been provided of the need for two questions in the census
- we know that the data quality for a number of bedrooms question is greater than number of rooms

We intend to recommend collecting number of bedrooms on the 2021 Census rather than replacing it with administrative data. This is due to:

- some outstanding quality concerns around how the data varies across the country which impacts calculating occupancy rates
- our lack of understanding of the timeliness

⁴ Précis is a type of summary or abridgment.

⁵ A scheme under which the government and a housing developer jointly fund an equity loan of 30% of the valuation, so that the purchaser only needs to pay a mortgage on 70% of the value.

- uncertainty from respondents about the impact of changing to an address based measure compared to a household measure

We will continue research into using the Valuation Office Agency (VOA) data to enhance the 2021 Census outputs on number of rooms, subject to data quality. Our research will also cover use of VOA data in an Administrative Data Census and considering how the VOA size of property variable could be used.

Annex 1: List of responding organisations

Two responses from individuals responding to the consultation were removed due to insufficient evidence.

The respondents that gave permission to be acknowledged were:

Academic from Cardiff University
Academic from Manchester University
Academic from University College London
Bristol City Council
Cambridge Centre for Housing and Planning Research
Cheshire East Council
Chester West and Chester Council
City of Lincoln Council
Department for Communities and Local Government
Greater London Authority
Greater Manchester Combined Authority
Luton Council
NHS London Healthy Urban Development Unit
Market Research Society
Research Consultancy
Richmond upon Thames and Wandsworth Council
Southampton City Council
Welsh Government
Welwyn Hatfield Council

We also received responses from:

Commercial Organisation
Local Authorities (13)
Individual