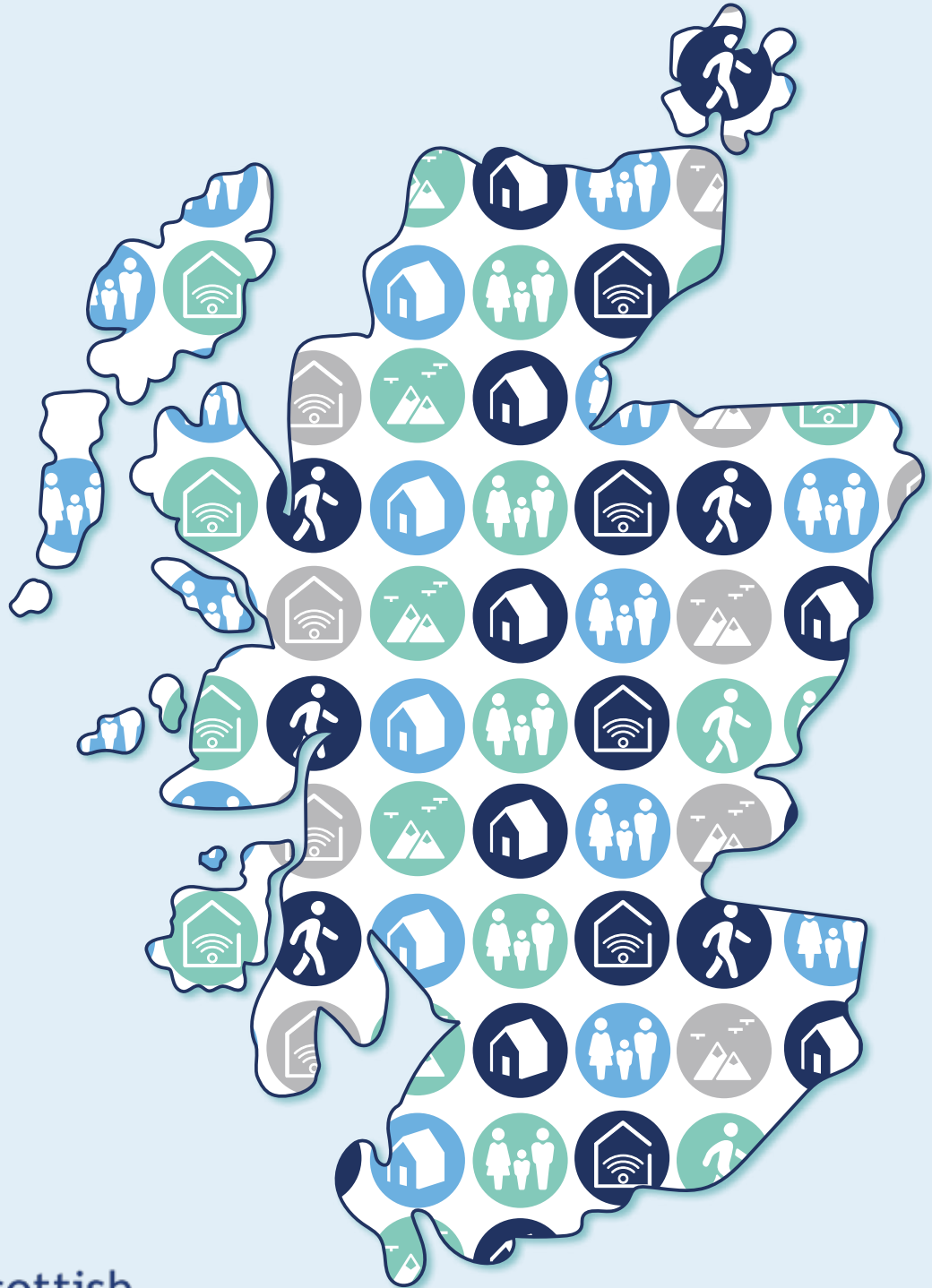



Scottish Household Survey: Behind the Numbers | 2019

A National Statistics publication for Scotland



 Scottish
Household
Survey
Help Shape Scotland



Scottish Government
Riaghaltas na h-Alba
gov.scot

Acknowledgements

The Scottish Government acknowledges and thanks the 10,577 people across Scotland who gave their time to take part in the Scottish Household Survey 2019.

This report was produced by the Scottish Household Survey Project Team at the Scottish Government.

We would also like to thank all the Scottish Government lead analysts who contributed to the project.

Finally, special thanks to Ipsos MORI and their interviewers and surveyors for continuous efforts during the fieldwork.

Contents

What is a survey?	1
Why are surveys important?	2
How long has the SHS been running?	3
How many people do you speak to?	3
What data is collected in the SHS?	4
Do you collect travel data?	5
Do you collect data on house conditions?	6
How is the SHS data collected?	7
What is a sample?	8
Why don't you speak to everyone	8
How do you get it to be representative?	9
Where do the addresses for the SHS come from?	10
So the SHS represents everyone in Scotland?	11
What do you do about bias?	12
I'm busy, couldn't you just go next door instead?	13
Why can't I do it online?	14
Why can't I do it by post?	15
Why is your method more reliable than others?	16
What are confidence intervals?	17
What is statistical significance?	18
How will I know when something is statistical significant	19
Can I look at statistical significance in a chart	20
How can a sample of 250 for a local authority be representative?	21
What is the response rate?	22
Has the response rate changed?	23
Do you always ask the same questions?	24
What are 'core' questions?	25

Contents

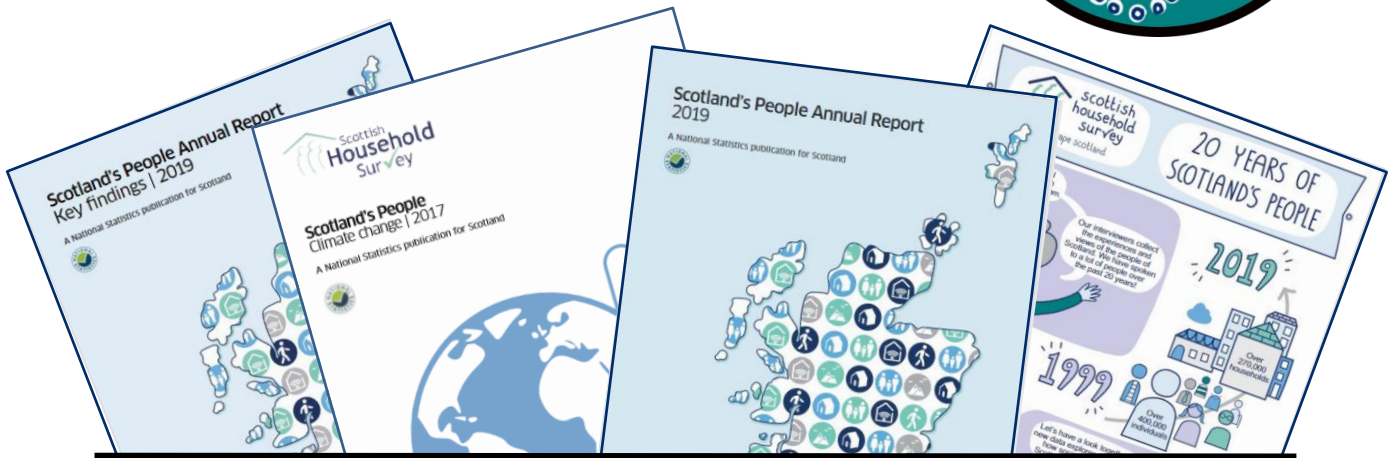
<u>Why are you asking me these questions when the government already knows all about us?</u>	26
<u>Are there any limitations of SHS data?</u>	27
<u>Quality assurance of SHS data</u>	28
<u>Where can I find out more about the SHS?</u>	29
<u>How do I contact the SHS team?</u>	30





What is a survey?

A survey is a way of gathering information from individuals. We ask questions about people's opinions or experiences and then generalise our results to Scotland.



The Scottish Household Survey (SHS) is the largest face-to-face survey that the Scottish Government runs.

The Scottish Household Survey sample has been designed to produce results for the whole of Scotland and every local authority **every year.**



Help Shape Scotland



Why are surveys important?

Information from people living in Scotland is a critical source of data, not just for the government, but also for academics, charities, the media and citizens themselves.



Collecting people's views means policies and laws are made with input from the people who have to live by them.

All kinds of people use this information to shape Scotland. For example, the government can check if policies are working, and if targets are being met.



The people of Scotland tell us their views.

How long has the SHS been running?



The Scottish Household Survey has run continuously in Scotland since devolution in 1999.



1999 → 2019

How many people do you speak to?





What data is collected in the SHS?



We collect information about Scottish homes and the people who occupy them. The interview comes in two parts: a household section and an adult section.

Generally the Highest Income Householder or their spouse/partner answers the first part.

And one adult (aged 16+) member of the household is selected at random to conduct the second part.



The 2019 Household part covered topics such as:

- Accommodation
- Internet access
- Driving and Transport
- Health and Disability
- Employment
- Household Income
- ...and more

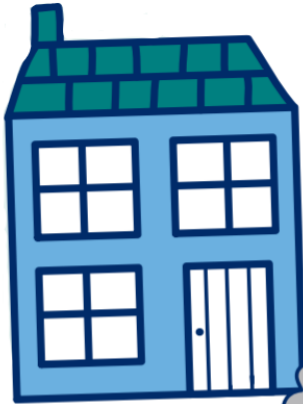
The 2019 Random Adult part covered topics such as:

- Accommodation
- Neighbourhoods and Community Safety
- Education and Training
- Volunteering
- Health and Disability
- ...and more

How do you get your travel data?



The travel diary shows us how people in Scotland get around.



We collect detailed information about the journeys people make by asking about the trips the people of Scotland make.

We record this information no matter how short or far the journey, how they travelled, or where people went.





Do you collect data on house conditions?



We also do a physical survey on the condition of Scotland's homes.

From 2012, the Scottish House Condition Survey (SHCS) has been incorporated into the SHS.

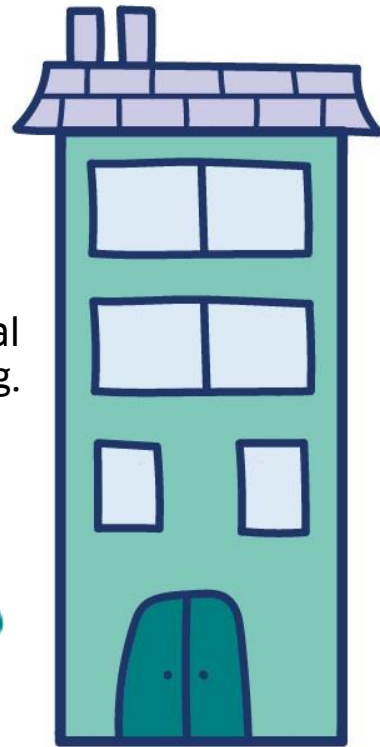


Some of the households are asked if they would like to consent to a physical inspection of their home.



If they say yes...

... Surveyors complete a physical inspection of the dwelling.



A full physical survey is a visual inspection of both the inside and outside of a property.



This gives us information about energy efficiency, fuel poverty and disrepair in Scottish homes.

How is the SHS data collected?



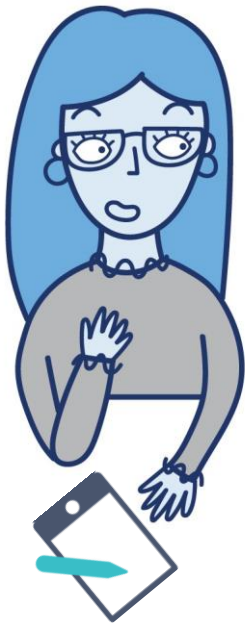
Professional interviewers conduct face-to-face interviews with a sample of the people in Scotland.



Interviewers work for Ipsos MORI and use computer tablets to record answers.



Interviewers are required to make up to six calls at an address.



Interviewers ask questions and have a book of multiple choice answers for the respondent.





What is a sample?

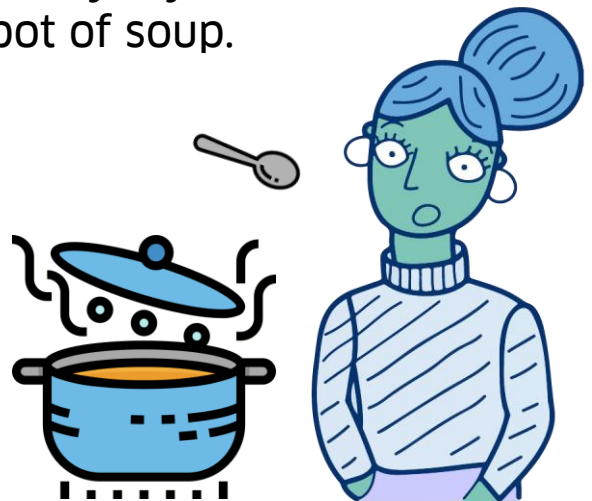


A sample is a small quantity, used to estimate the whole.

For the SHS, a sample is the group of people who are asked our survey questions. This group of people should represent the people of Scotland so that we can use our data to talk about the country as a whole.

People use sampling in their everyday lives.
Imagine you're making a pot of soup.

...To check how it tastes, do you need to eat the whole pot? Or will a spoonful (or sample!), be enough?



Why don't you speak to everyone?



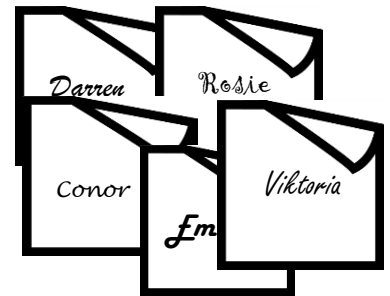
We only speak to a sample of people to reduce the burden on people in Scotland and because it is cheaper.



How do you get it to be representative?



We choose our sample of the general population randomly each year.



Random sampling is like putting everyone's name into a hat and drawing out several names. Each person in the population has an equal shot of being picked as everyone is selected by chance.

This means that those selected are more likely to represent the entire Scottish population.

This is important to the overall survey research design.

Where do the addresses for the SHS sample come from?



We randomly select addresses from the Royal Mail's list of residential addresses.*

We don't know anything about the people living at this address until we come. We do not have an email, phone number, or even a name.



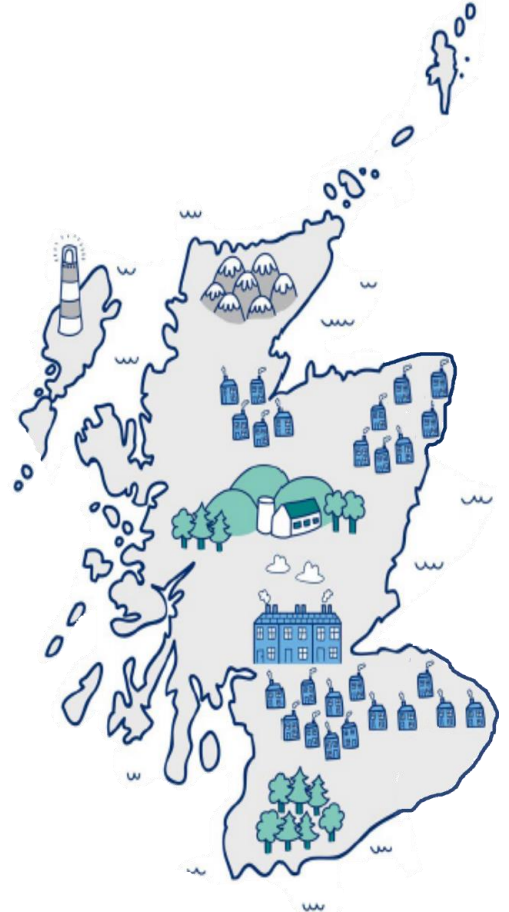
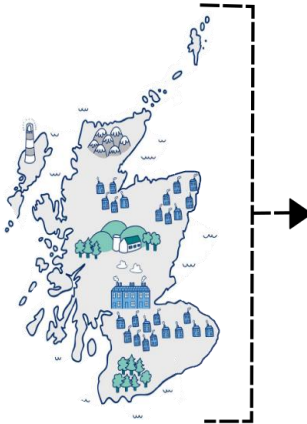
The sample of the population is made up of all **households**, and excludes prisons, hospitals and military bases.

*Called the small user Postcode Address File

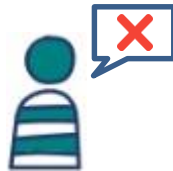
So the SHS represents everyone in Scotland?



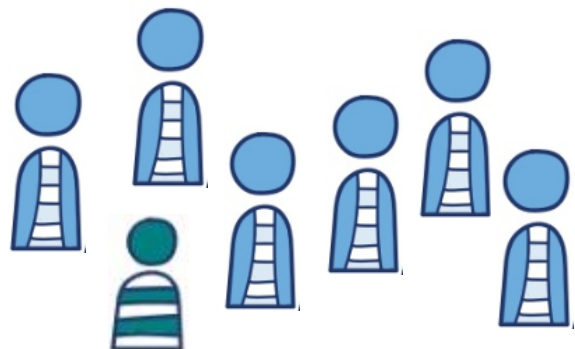
Ideally, a selected sample is a miniature of the population it came from.



One of the problems we face is non-response: when respondents don't want to take part.



This may cause some groups to be over- or under-represented. This can introduce bias.

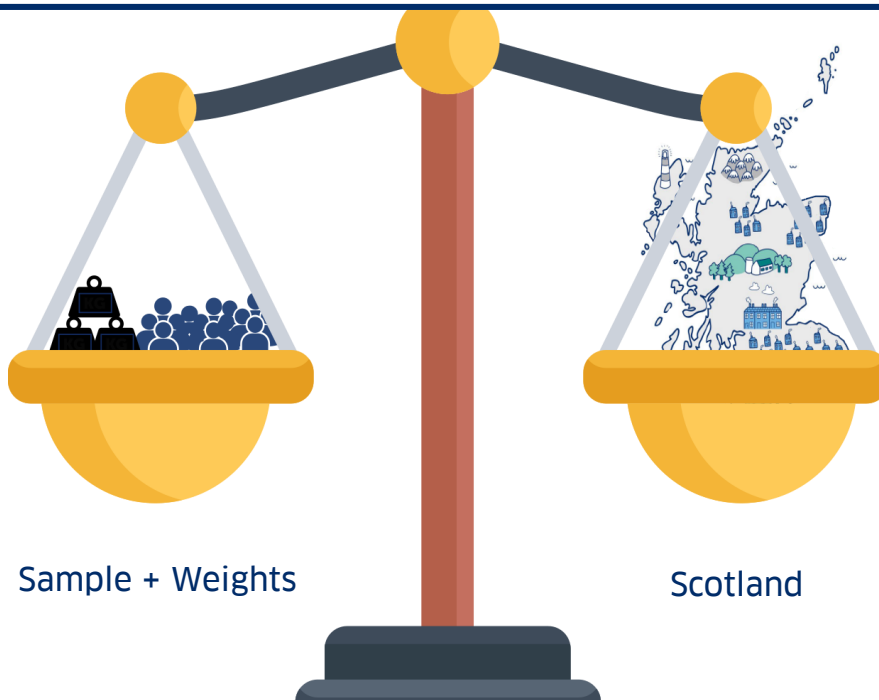


What do you do about bias?



A correction technique called 'weighting' makes sure the sample is representative of the population.

We assign an adjustment weight to each person to ensure our sample represents the population of Scotland.



The weighting procedures for the SHS incorporate a selection weighting stage to address the unequal selection probabilities and calibration weighting to correct for non-response bias. Calibration weighting derives weights such that the weighted survey totals match known population totals



I'm busy, couldn't you go next door instead?



Sorry, but once we have randomly selected an address, we cannot change it. We're not looking for just anyone to respond.

We use **Systematic Random Sampling**, which is the purest form of sampling.

Every household within each local authority has an equal chance of being selected.



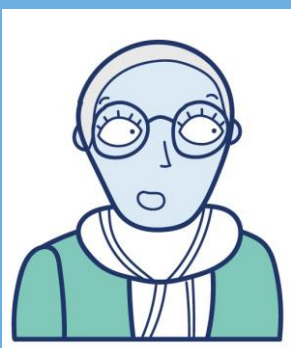
Interviewers make up to six attempts to contact this household.



This means that confidence intervals can be calculated, and accurate comparisons can be reported.

We can see if something has risen or fallen over time, or if things vary between regions or groups of people.

This is not always the case for surveys that use less reliable sampling methods.

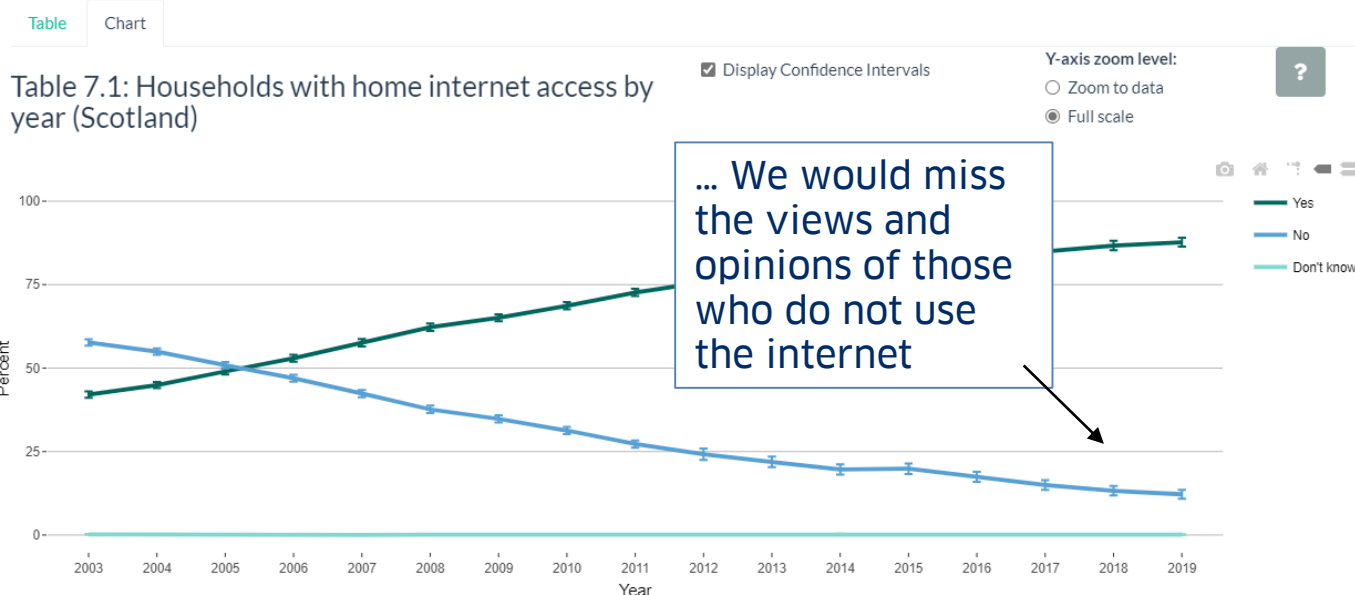


Why can't I do it online?



We can't do the survey online because the data wouldn't be accurate enough.

For example, we collect information about the number of people in Scotland who don't use the internet. We couldn't get an accurate answer for this from an online survey...




Online surveys are cheaper, but are affected by very low response rates, have problems capturing views of hard-to-reach groups (e.g. people who do not use the internet), and we would only be able to ask a fraction of the questions which we ask.

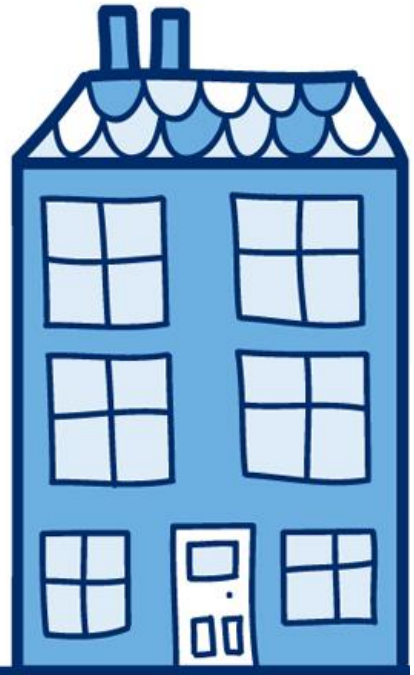




Why can't I do it by post?



Postal surveys are cheaper to collect than face-to-face. However, response rates can be low and they are unlikely to give us a representative sample.



A postal questionnaire might be sent out to a random sample, but those who take the time to respond are more likely to represent an interested part of the community than all voices.



Why is your method more reliable than others?

We use random sampling. Other methods are cheaper and easier to collect, but the results are less accurate. Random sampling is the most accurate method.



“Better value” methods have their place. However, if the sampling method is **not random**, we have **less confidence** in the results, and should be careful when using them, particularly when making comparisons.

Quota sampling, for example, is non-random. It tries to capture people with certain characteristics. The probability of someone being included is not known, so confidence intervals cannot be calculated.



Let's compare random and quota sampling.



	Random	Quota
Cost	↑	↓
Time	↑	↓
Accuracy	↑	↓




Random sampling is more expensive and time consuming, but gives us accurate results.

Quota sampling is cheaper and less time consuming, but gives us less accurate results.



What are confidence intervals?




A way of expressing the range of values that we have confidence our true value falls within.

Like all sample surveys, the SHS can only produce **estimates**. However, because we use a robust sampling method, we are able to calculate confidence intervals.

Because we are making estimates, we need to take some **uncertainty** into account. Confidence intervals help us to do this.

A 95% confidence interval is a range of values that you can be 95% certain contains the true mean of the population.

You might see **error bars** like these, which show our confidence intervals. These are a range of values a little above and a little below the top of the bar.



We can't tell you the exact value for the population of Scotland.

But we can say that we have confidence that it falls within these bars.

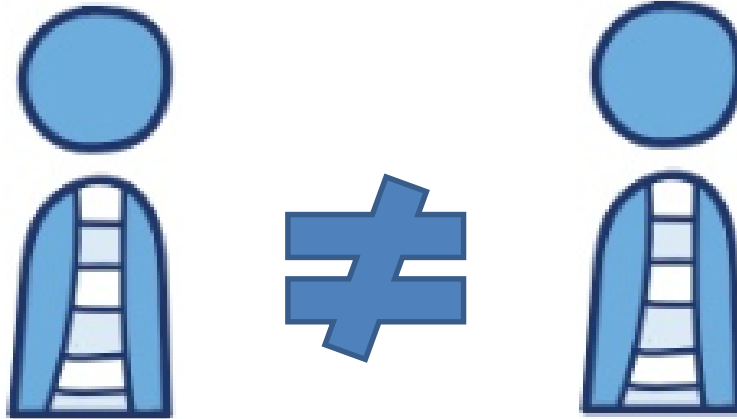




What is statistical significance?



Statistical significance tells us whether differences between groups or changes over time are genuine.



If we want to say that two things are **different**, we have to take our degree of uncertainty into account. To do this, we need to 'test' if the difference is statistically significant.

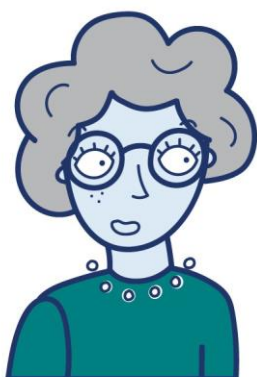
A finding is statistically significant when we can show that the probability of finding such a difference by chance is low.

In our Annual Report we only comment on statistically significant findings.

How will I know when something is significant?



In our data explorer we highlight the statistically significant findings in green and purple.



If we look here at the difference between Glasgow and Scotland as a whole with regards to housing tenure...

Tenure of households by year (Glasgow City)

Column percentages, Households

Tenure	2012	2013	2014
Owner occupied	48	46	45
Social rented	36	35	36
	16	17	18
	1		1
	100		100
Base	980	980	1020

We can say that in Glasgow, owner occupation is higher than for Scotland as a whole for these years.

...and that social renting is lower.

■ Significantly greater than Scotland | ■ Significantly lower than Scotland

These differences are statistically significant - so we can comment on them with confidence.





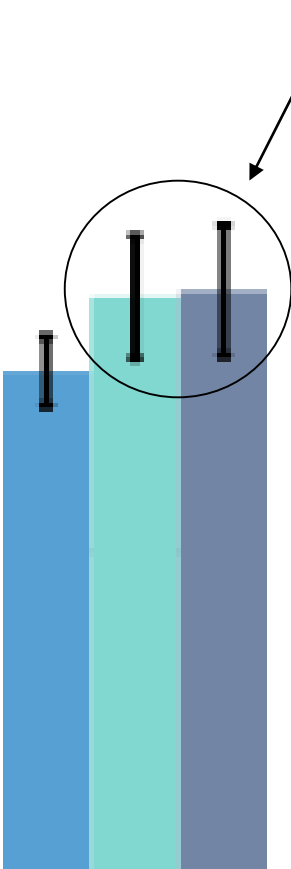
Can I look at statistical significance on a chart?


We can also think about statistical significance when using charts.

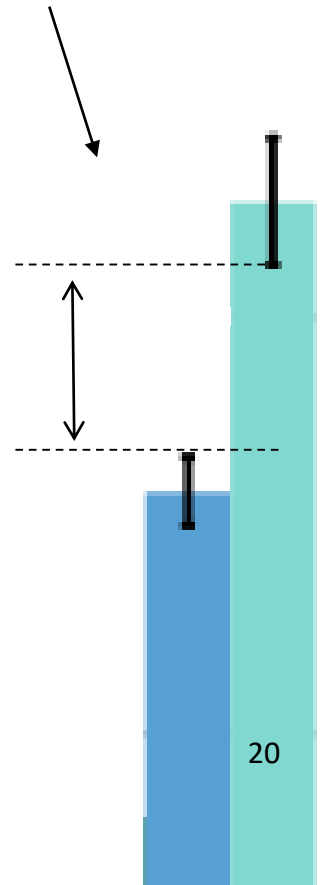


Remember our error bars? Well, if they **overlap**, like this, then we **cannot be sure** that the difference between these two values is statistically significant.

Here however, the error bars **do not overlap**. The difference between these values is **statistically significant**.



We should only report on findings which are statistically significant. 



20

How can a sample of 250 for a local authority be representative?



As we increase our sample size, we become more certain about our results to a point, before this increase tails off

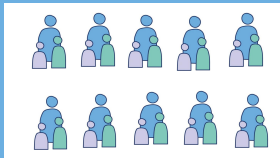
It's a bit like Goldilocks and the Three Bears...



Too Cold.

A sample of 50.

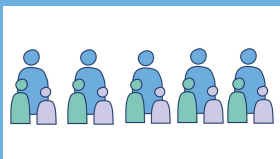
With a sample this small we wouldn't be sure our estimates were precise.



Too Hot.

A Sample of 500.

We don't need to collect this big a sample. This would be time consuming, expensive, and would only make us slightly more certain.



Just Right.

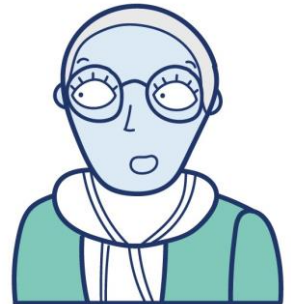
A sample of 250.

Our chosen sample size of 250 is large enough for us to trust our estimates, and is an efficient use of our resources.

Based on our calculations, we ensure a minimum number of interviews for each local authority that's **'just right'**. We make sure that we use our resources efficiently, and don't overburden the people of Scotland.



What is the response rate?



In survey research, the response rate is the number of people who took part divided by the number of people we asked to take part. Our target response rate is 65%.

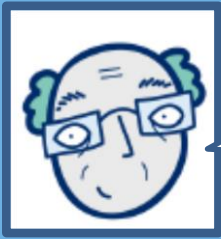


The response rate of the Scottish Household Survey in 2019 was:

63%

This means over 6 out of every 10 people who we asked to take part, did.

The response rate is an important indicator of survey quality, but not the only one. Non-response can introduce bias into survey estimates.



Has the response rate changed?



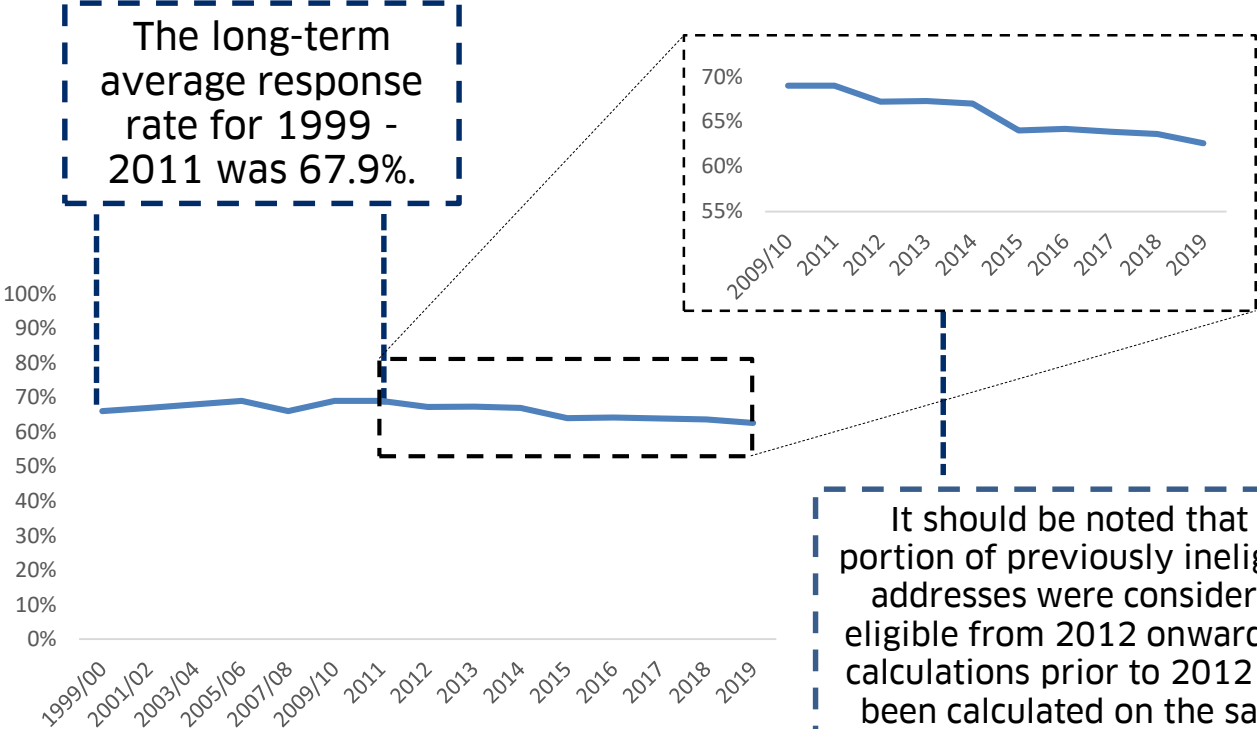
The SHS response rate has fallen by 4% since 1999.

In 2019 the SHS response rate was 63%...

this was the similar to the previous four years...

but 4 percentage points lower than the 2014 response rate of 67%.

The long-term average response rate for 1999 - 2011 was 67.9%.



It should be noted that a portion of previously ineligible addresses were considered eligible from 2012 onwards. If calculations prior to 2012 had been calculated on the same basis, there would have been a lower response rate.

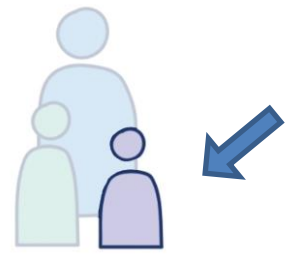
Do you always ask the same questions every year?



The SHS questionnaire has a core and modular design which rotates and replicates across to subsequent years.



Some questions are asked of the full sample and others of one-third sub-sample.



There is a "core" set of 20 questions which have been designed to be asked in consistent ways with other surveys, such as age and gender.



One third of the sample opt in to a physical survey of their home.



The subsequent "modules" of questions have been designed to be flexible in terms of topic, frequency and geography.



Some questions are asked of the full sample annually



2016
2017
2018
2019

Some are asked of a third of the sample annually



2016
2017
2018
2019

...and some are asked of the full sample biennially.



X
2017
X
2019

...and some are asked of one third of the sample biennially.



X
2017
X
2019

Annual questions give us yearly estimates, and biennial questions give us estimates every second year.

Full sample questions provide local authority level estimates, while third-sample questions provide national level estimates.

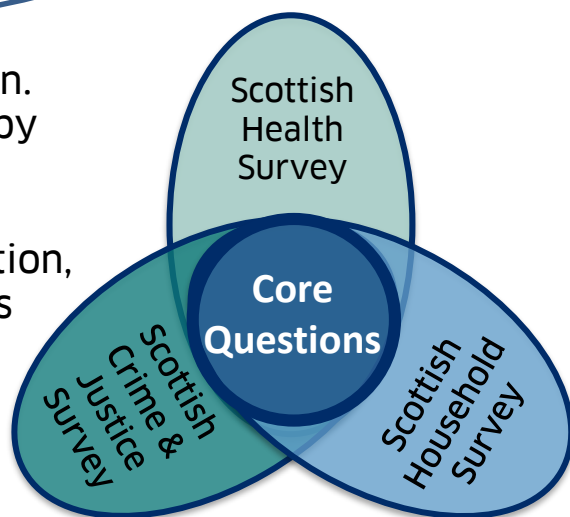


What are 'core' questions?



Some questions are asked in the same way across the three Scottish Government face-to-face interviewer surveys. For these questions, there is a pooled sample of around 19,500 people.

This large sample gives us more precision. This means we can do detailed analysis by smaller geographies and **equalities characteristics** such as: ethnic group, religion, country of birth, sexual orientation, gender and age. The government use this data to measure Scotland's national performance.



We ask around 20 core questions, which cover these topics:



General Health



Long Term Condition



Smoking



Unpaid Caring



Perception of Local Crime



Demographics: Household Types



Diversity: ethnic group, religion, sexual orientation, country of birth



Household tenure; SIMD



Car Access



Local Service Satisfaction

Why are you asking me these questions when the government already knows all about us?



We need this information because we don't have all the answers about Scotland's population.

The government gets some information from the census but this quickly goes out-of-date as it's only once every 10 years...



Table Chart

Table 3.3: Tenure of households by year (HIH aged 16 to 34) (Scotland)

Display Confidence Intervals

Y-axis zoom level:

Zoom to data

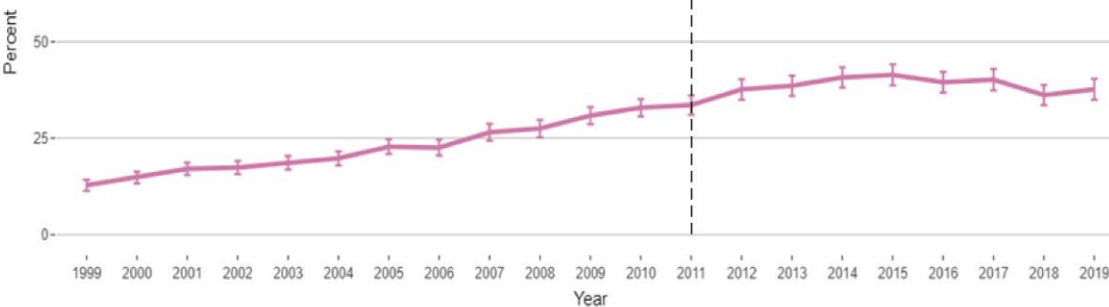
Full scale

?

...And we would miss changes that have happened since then; like the rise in young people privately renting since Census 2011.

📷 🏠 📏 📱

— Owner occupier
— b. Owned outright
— c. Buying with help of loan/mortgage
— d. Social Rent
— e. Private Rent
— f. Other



Making lawful, ethical, secure and transparent use of administrative data to supplement the information respondents are asked by interviewers could create time and cost savings. Unfortunately most data is not currently readily available to Scottish Government for these purposes. The "Long-term Survey Strategy" published in March 2018 sets out ongoing work to realise the public benefits that access to these data sources would bring, and references the burden asking these 26 questions in surveys places on respondents.



Are there any limitations of SHS data?

There are a number of important methodological and data issues that users need to be aware of when using the SHS data.



Like all sample surveys, the SHS can only produce estimates. However, we also report confidence intervals. A 95% confidence interval is a range of values that you can be 95% certain contains the true mean of the population.

The SHS is limited in the amount of detail it can collect about some topics. As a multi-purpose survey, the SHS is not designed to provide in-depth information about household income. This can be obtained from more specialised surveys such as the Labour Force Survey and the Family Resources Survey.

Although the SHS has a large sample that covers the whole of Scotland, it has some geographical limitations. Users should not use it to undertake geographical analysis below local authority level. Instead, the [Scottish Surveys Core Questions](#) should be used for this.

Users need to be mindful of the sampling errors for analysis, especially when this is based on breakdowns within a local authority.

In statistics, **sampling error** is the error caused by observing a **sample** instead of the whole population. The **sampling error** is the difference between a **sample** statistic used to estimate a population parameter and the actual but unknown value of the parameter.



Measuring and assuring the quality of any survey does not just boil down to the response rate.

We ensure quality at every stage.

The Scottish Household Survey team ensures the quality of the data in many ways. Some of these include...

- Cognitive testing to ensure good quality questions
- Extensive training for interviewers
- Experienced researchers conducting the data processing



The Scottish Household Survey report is produced under the Code of Practice for Official Statistics. National Statistics are produced free of political interference, to agreed standards, and undergo regular quality assurance reviews.

For more information, visit

<https://code.statisticsauthority.gov.uk/>



Where can I find out more about the SHS?



The SHS publishes lots of information on various topics. These can be found below.

Publications

[SHS Annual and Key Findings Reports](#)

[SHS Data Explorer](#)

[SHS Questionnaires](#)

[SHS Interactive Dashboard](#)

[SHS 20 Years of Scotland's People Data Comic](#)

[SHS Inequalities Data Comic](#)

[statistics.gov.scot](#)

[UK Data Service](#)

[Transport and Travel in Scotland \(TATIS\)](#)

[Scottish Surveys Core Questions \(SSCQ\)](#)

[Scottish House Condition Survey \(SHCS\)](#)

We also have an animation and a short film. These are on Twitter and Facebook.





How do I contact the SHS team?



Go directly to the SHS homepage or contact us at the details below.

Contact Details



Webpage: <https://www.gov.scot/collections/scottish-household-survey/>



Email: shs@gov.scot



Tel: 0131 244 1685



Twitter: [Follow us on twitter](#)



Post: SHS Project Team
Area 2-H (Dockside)
Victoria Quay
Edinburgh
EH6 6QQ

Mailing list

If you wish to be added to the e-mail mailing list to be kept informed of details of SHS developments, you should register your interest in 'Population and Household Surveys' and/or the Scottish Household Survey' sub-topic on the [ScotStat Register](#)

Comic illustrations are by [Katie Quinn](#).